TRADE PUBLICATIONS.

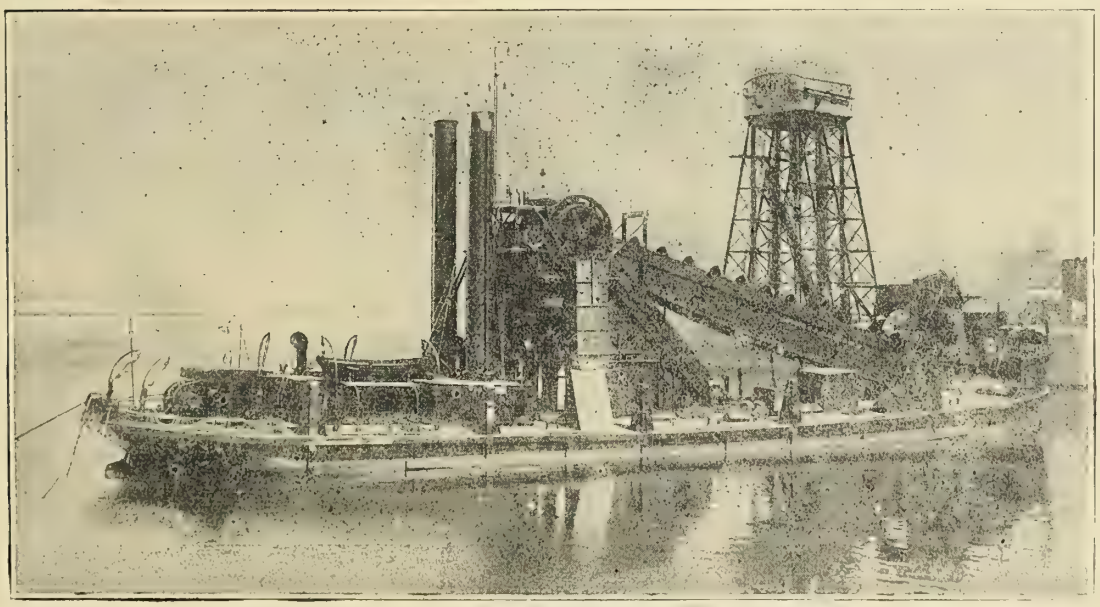
AMERICA

"Hand-Book of the Philadelphia Bourse" is a 24-page booklet of interest to manufacturers of marine and land machinery, tools, equipment and supplies. It describes in detail the exhibition features of the Bourse, Philadelphia, Pa., which is a permanent exposition of the lines referred to, giving the exhibitor more than ordinary office facilities and the opportunity to show his machines in motion if he likes, where many thousands of visiting buyers are attracted. The booklet is illustrated with half-tones showing exhibits of representative concerns and is accompanied by a diagram showing floor plan.

Pipe machines are described and illustrated in a 24-page pamphlet published by Crane Company, Chicago, Ill. The machines described in this catalogue have a capacity of from ⅜ to 18 inches. The following description is given of the No. 1½ machine with a capacity of ⅜ to 2 inches: "This machine is designed for great rapidity of production. The die head is movable, and carries with it adjustable expanding dies, movable centering guide jaws for cutting off pipe, and movable reaming and gaging device. The dies, four to a set, are actuated by an internal cam, operated by a lever. Moving this lever either forward or backward adjusts or expands the dies. To remove dies, the die head has a hinged door which can be opened and all dies exposed. When cutting or threading pipe below 1 inch, an extension die head is supplied, which supports the dies to prevent their bending, and should always be used. For cutting left-hand threads a suitable cage is supplied which fits into the die head. The gripping chuck is of the quick-grip type and consists of four jaws, each having two surface contacts, made of high-grade tool steel, and by turning a screw can be quickly adjusted to grip any size pipe within the capacity of the machine. When jaws are set they will grip or release pipe by the moving of a lever either to the right or to the left, without stopping the machine. At the rear end of the spindle there is a universal centering chuck to guide long lengths of pipe when threading. A rotary oil pump for supplying oil is furnished. When belt driven, change of speed and reverse motion can be obtained by countershaft. A complete set of pipe-gage blanks for adjusting dies is furnished. Solid bolt, or left-hand dies are furnished if desired at additional cost."

Motors and Accessories" is the title of an illustrated catalogue published by the F. A. Brownell Motor Company, Rochester, N. Y., successor to the Brownell-Trebert Company. This company makes a specialty of large marine motors adapted for heavy cruisers, racing boats and pleasure yachts.

"Perfect Control" is the title of an illustrated booklet published by C. F. Roper & Company, Hopedale, Mass. "Motor boat users have wished in vain for a boat which should be driven by the simple and convenient gasoline engine, but which should still possess that perfect control over speed and direction hitherto found only in connection with a steam plant or an electric motor. The Roper speed controlling, reversing propeller has been designed with a view to realize this ideal and does realize it. A gasoline launch equipped with this propeller can be driven at any speed desired, ahead or astern, from absolute rest up to the maximum, with no adjustment of the motor or liability of its stopping. The propeller is designed so as to keep the resistance on the engine substantially uniform whatever the speed of the boat may be, and accordingly all racing of the engine with its consequent skipping of impulses, sudden stops and nerve shaking explosions in the muffler, is eliminated. The danger and nuisance of these troubles are well known and require little comment. Suffice it to say that with our propeller there need be no apprehension concerning one's ability to control the speed of his boat when making a landing or going over places where the bottom is feared or known to be rocky. The speed may also be easily adjusted for fishing, trolling or the like. This control is obtained by the movement of a single lever, which moves the propeller blades through the various positions shown in the illustrations as well as all intermediate positions. There is absolutely no necessity for changing the adjustment of the engine after it is properly set for full speed ahead. The strength of the propeller is ample, and its simplicity may be perceived by a glance at the cut of its constituent parts. Any machinist can install it. It is balanced so perfectly that there is no jerkiness felt in moving the blades to reversing position, or vice versa. Another advantage found in the use of this propeller, which was unsought by the designer, is increased speed. Wherever applied thus far this result has been noted, and in some cases has amounted to a gain of at least a mile an hour in speed without any increase in the speed of the engine."



Barge-Loading Bucket Dredger "Shieldhill," at work in Clydebank Dock.

DREDGING PLANT

UP TO THE LARGEST DIMENSIONS AND CAPABILITIES.

DELIVERED COMPLETE OR SHIPPED IN SECTIONS.

Builders of Suction Dredgers, Bow and Stern Well, Centre and Side Ladder, Bucket Barge-Loading, and Hopper Dredgers, Discharge Pipes and Pontoons, Hopper Barges, Sewage Steamers, Caissons, Tugs, Ferries and Screw Steamers.

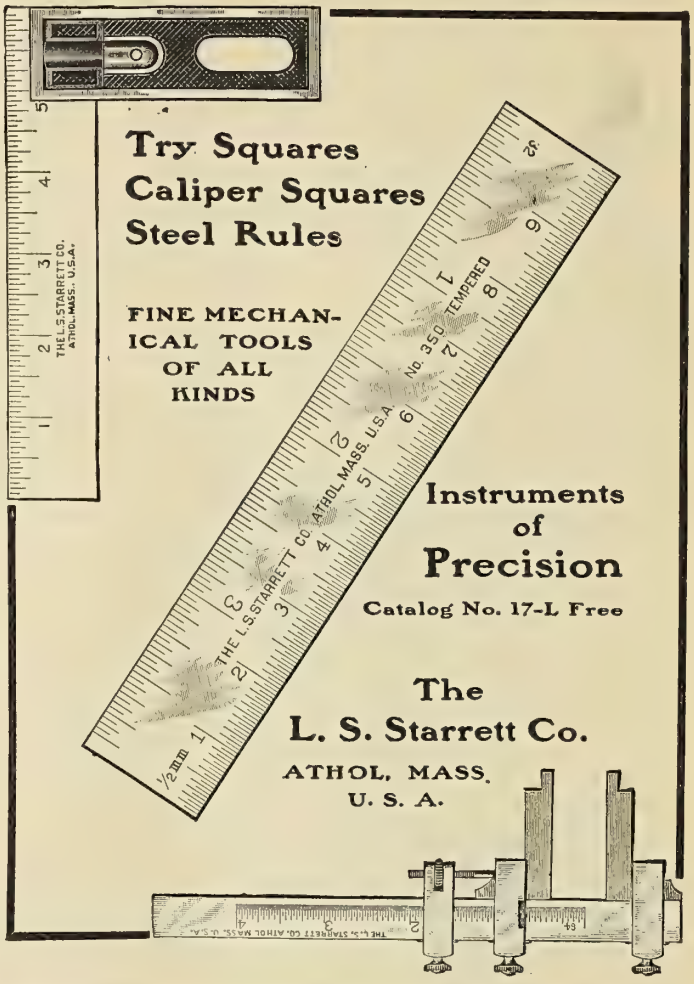
FERGUSON BROS., PORT GLASGOW, N.B.

On War Office and Admiralty Lists. Telegraphic Address :—"DREDGER, PORT GLASGOW."

"Core Box Machines," "Saw Dado or Grooving Heads," "Universal Trimmers," "Post Boring Machines" and "Mitering Machines" are described and illustrated in catalogues distributed by the Fox Machine Company, Grand Rapids, Mich., free copies of which will be sent upon application to any of our readers.

The Protection of Machinery from Rust and Corrosion.—A slushing compound made by Warren Brothers' Company, 93 Federal street, Boston, Mass., is stated to be the best method for the protection of machinery from rust and corrosion, and the manufacturers state that when protected by their compound, machinery may be immersed in salt water without bad effect. It is stated that this compound dries in from 15 to 20 minutes, and then may be handled without danger of exposing parts slushed. This compound is applied with a brush, and is said to cover about 1,200 square feet per gallon. It may be easily and quickly removed with waste and kerosene. The manufacturer states that Warren's slushing compound is not a paint, grease or lacquer, but a scientifically prepared chemical composition, which will withstand rain, sunshine, heat and frost.

Advantages of Amorphous Graphite as a Lubricant, by H. C. Woodruff. "Although the excellence of graphite for all sorts of lubrication and its particular adaptability to certain difficult lubrication is a matter with which most of us are familiar, few, perhaps, are cognizant of the fact that there are two forms of graphite—flake, or foliated, and amorphous, or non-structural, graphite—and that though chemically the same the latter is capable of finer pulverization, and with careful treatment may be reduced to an impalpably fine powder, absolutely free from grit or any sort of harmful impurity. Flake graphite, on the other hand, no matter how finely pulverized, always retains its original mica-like or crystalline structure and, comparing one with the other, there is a vast difference in nature, texture, action and effect. In the first place, amorphous graphite is adhesive in the highest degree. It stays put, and adhesiveness is one of the first requisites of an efficient lubricant, in that to cool a hot bearing it is absolutely essential that the lubricating agent 'stay put' where applied. To illustrate: Take a pinch of finely pulverized amorphous graphite and rub same in the palm of the hand, on paper or on some other convenient surface and observe its action. Note that the more one rubs the more effective the lubrication, for this form of graphite is not easily removed from surfaces in frictional contact, but maintains constant and effective duty right at the point of contact, and is at its best under heavy frictional pressure, in that as above stated it is adhesive in the highest degree—'stays put'—and there is absolutely no waste, as every particle is an active lubricating factor. Then too, as an impalpable powder it readily and quickly penetrates and distributes itself in a smooth, slippery, even coating between the tightest bearings, filling every pore, crevice and interstice, thereby evening irregular bearing surfaces and reducing friction to a minimum. Let us also see how, mixed with lubricating oils, this amorphous graphite will minimize friction. A microscopic examination of perfectly smooth bearings—cylinder surfaces for instance—will disclose many minute irregularities which, in the nature of things, must be productive of more or less friction. This friction, of course, means wasted energy—energy that instead of being utilized as power is absorbed as heat—a condition that more often than not means an overheated bearing with the consequent loss of time and temper. To effectively overcome this friction and utilize this otherwise wasted power, a lubricant possessing considerable 'body' is required—that is, a substantial lubricant of such a nature as to eliminate as far as possible these microscopical irregularities and provide a bearing offering minimum resistance to the surfaces in play. Experience, which is man's teacher, has not only demonstrated time and again that oil in itself will accomplish this only to a certain extent, but it has also taught that pure soft, finely powdered graphite, properly and judiciously applied, will do wonders, so it only remains to make the proper application of the right sort of graphite. It has, therefore, long been the endeavor of intelligent engineers to secure a graphited oil, that is to say, an oil in which graphite floats or is held in suspension without precipitation, sufficiently long to perform its duty, for it is easy to see the great advantage to be derived from the use of an oil having every drop impregnated with solid lubricating matter. This seemingly simple problem, however, is one that has until lately baffled engineers of experience, but it has now been found that amorphous graphite when reduced to an impalpably fine powder will, when mixed with oil in the proportion of about one teaspoonful to the pint of oil, remain in perfect suspension long enough to feed through lubricator tubes without clogging, thus causing every drop of oil to carry its mite of graphite. The United States Graphite Company, Saginaw, Mich., prepares a lubricating graphite of this description."



COLEMAN'S LIQUID COPPER

FOR SHIPS' AND YACHTS' BOTTOMS,

applied by brush, is universally used. It exposes to the water a contact surface of substantially pure copper.

Its merits are:

1st—Lower cost than any other method of obtaining a copper coating.
2nd—Non-fouling as pure sheet copper.
3rd—Renders hulls of wooden vessels, and piles, worm proof.
4th—Will last indefinitely with occasional touching up.
5th—Averages increased speed.

At the present price of ingot copper it retails for $6.50 per gallon. The insulating paint for steel and iron vessels, to prevent galvanic action, retails for $3.50 per gallon. One gallon covers an average of 250 square feet, making the cost for copper coating steel and iron hulls, exclusive of labor and docking, under five cents per square foot.

Shipments made F. O. B. Boston.

Money order, draft or certified check must accompany order.

G. D. COLEMAN, Mfg. Chemist
BOSTON, MASS.

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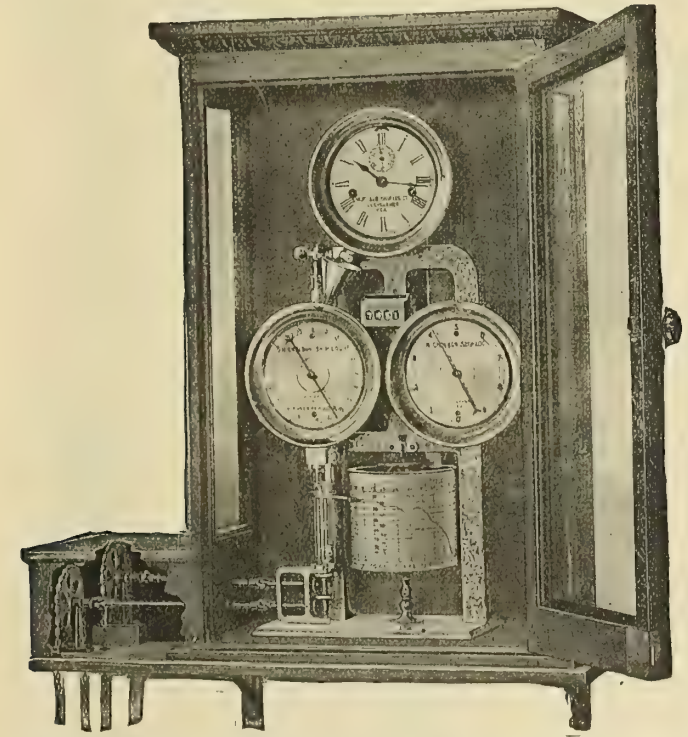
Copy 75-C FREE

This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks," discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.
Jersey City, N. J.

Plastic bronze is the subject of a pamphlet distributed by the Ajax Metal Company, Philadelphia, Pa. This pamphlet states that the company was led to experiment in the endeavor to produce an alloy with lower tin and higher lead content, and that by means of a process invented and patented in 1900 it has been enabled to alloy copper and lead in any proportions with or without tin. The company has adopted a formula containing 30 per cent lead and 5 per cent tin for general purposes. This the company terms "Ajax Plastic Bronze."



THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations, viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge, or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.
CLEVELAND, OHIO, U. S. A.
Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

The serial on pressure reducing valves, by W. H. Wakeman, is still running in *Graphite,* published monthly by the Joseph Dixon Crucible Company, Jersey City, N. J. Those of our readers mentioning this magazine will be put upon the free mailing list of *Graphite,* which will be found interesting to all engineers and others interested in the subject of lubrication.

"Speed Wheels" are the subject of a 32-page catalogue handsomely illustrated in several colors, issued by the Michigan Wheel Company, Grand Rapids, Mich. This is the company's new 1908 catalogue just off the press, and should be in the hands of every user and prospective user of propellers. "This is the most complete catalogue ever issued on propeller wheels, reverse gears and accessories, and we claim to be the largest manufacturers of these specialties in the world. We sell more than all the other manufacturers combined. Marine gasoline engines are not reversible the same as a steam engine, so it has been necessary to provide some suitable mechanism to control the boat, either going ahead full speed, stopping or backing up. This is done satisfactorily by either a reversible propeller wheel or a reverse gear and solid propeller wheel. They each have their advantages and disadvantages, so it is a matter of choice to the user between the two. A reversible propeller controls the boat by changing the pitch of the blades from full pitch ahead (full speed ahead), neutral (standing still), full pitch back (reversing or backing up). The blades can be readily adjusted to suit the power and model of hull for speed. They are light in weight and occupy but little space. The hub is small and reversing mechanism of great strength and rigidity, and very simple in construction. The two and three-blade reversible wheels are designed on the same lines as our famous standard speed propeller wheels, and have the same form and pitch. They will produce the same speed. The blades are in the center of the hub, perfectly balanced and easy to operate. They are giving such universal satisfaction that they have revolutionized the use of the reversible propeller wheels. The brass sleeve rotates with the shaft, and is moved longitudinally by the reverse lever. This sleeve operates the blades and fork. The water is kept from entering the boat by an outside combination stern bearing and stuffing box, also by an inside stuffing box. Weeds, sand, etc., cannot interfere with the reversing of these wheels. It is impossible, by striking any obstruction, to injure the hub or fork so that either will refuse to reverse. The reverse lever and latch are made of heavy malleable iron, the quadrant and fulcrum of cast iron and the stern bearing, outer and inner stuffing boxes, thrust and clamp collars are of bronze. The outer tubing or sleeve is of brass, with stern bearing babbitted."

"Coe's Improved Combustion and Draft System" is the title of a booklet distributed by George H. Thacher & Company, Albany, N. Y. This device consists primarily of four main parts. "First, the balanced draft regulating mechanism controls the stack or fire damper and the admission of steam through the superheater to the jet blower, holding the boiler pressure within a variation of 3 pounds. Second, the superheater is located according to the setting of the boiler at the point where the full force of the hot gases of combustion strike it, usually directly back of the bridge wall in the return fire-tube type, or above the tubes directly in front of the first baffle plate in the water-tube type. Steam is drawn from the main line and superheated until it becomes practically a gas as it enters the blower, thus reducing the consumption to a minimum and preventing the possibility of injury to the boiler. Third, the twin tube jet blower is located in the back or side wall of the boiler, and is connected with the fire-box by suitable air ducts, through which a jet of highly superheated steam is discharged, forming a partial vacuum and drawing with it a quantity of air, giving the desired pressure under the grate, thus supplying the gases necessary for combustion. On account of the efficiency of the blower less than 3 per cent of steam is used, and in conjunction with the superheater this consumption may be materially reduced, making it the most economical forced draft system on the market. Fourth, the Coe sectional shaking and dumping cut-off grates consist of the usual bearing and supporting bars, which carry specially designed rocking frames. The design of the patented journals and the side or bearing frame into which they fit, does away with all wedges or blocks for holding grates in position. It is stated that this system may be installed in any type of boiler without change to setting; that it positively prevents formation of clinkers from the combustion of any coal; that it reduces the cost of relining furnaces of boilers 50 per cent; that it works no injury whatever to boilers, and that it gives increased rate of combustion which does not depend upon the height of the stack."

"Valves and Fittings for Ammonia" is the title of a handsomely printed and illustrated cloth-bound volume of 124 pages issued by Crane Company, Chicago, Ill. The valves and fittings illustrated in this catalogue, with the sole exception of malleable iron screwed fittings, are an entirely new line, and were designed to meet the demands of the most approved engineering practice as to standards, interchangeability of parts, proportions, thickness of metal, etc. Crane valves and fittings for ammonia are suitable for working pressures up to 250 pounds, and are subjected to an air-under-water test of 300 pounds. The company has tested different sizes of ammonia valves to 4,000 pounds without breaking.

"Flake Graphite" is the title of a booklet published by the Joseph Dixon Crucible Company, Jersey City, N. J. "Dixon's Ticonderoga Flake Graphite makes the better lubrication possible. It is the master key to the most difficult problems of lubrication. Graphite occurs naturally in two forms, the crystalline and amorphous, but the latter is usually closely associated with grit or clay, or other impurities, and is, therefore, not fit for lubricating purposes. The crystalline form is the one exclusively used for this purpose, and the foliated or thin-flake form, such as the Dixon mines in Ticonderoga, N. Y., supply in abundance, is especially valuable. Dixon's Ticonderoga flake graphite is a pure, foliated, water-dressed and air-floated American graphite. It has unrivalled smoothness and softness and endurance. It is entirely inert and not affected by heat, cold, acids or alkalies, and added to oils or greases increases their efficiency and endurance to a marvellous degree. Lubricating graphite improves the condition of the rubbing surfaces by filling up all the pores and microscopic irregularities, providing a coating or thin veneer of great endurance and remarkable smoothness. Graphite may be fed dry or mixed with water, oils or greases in various proportions according to the circumstances and requirements. We are always glad to give advice and aid as to ways of feeding graphite and the amount necessary for best results."

A Valuable Book on Rivets.—"Scientific Facts and Other Valuable Information About Victor Boiler, Structural and Ship Rivets" is the title of a handsomely printed and illustrated catalogue of 78 pages, published by the Champion Rivet Company, Cleveland, Ohio. This catalogue contains a great deal of information of interest to users of rivets, and a free copy will be sent to every reader who will mention this magazine. Included in the catalogue are the essays on "How to Heat and Drive Good Steel Rivets," which were awarded the prizes tendered by the Champion Rivet Company at the annual meeting of the International Boiler Makers' Association, held in Cleveland, last May. There is also a report on physical and mechanical tests made of Victor Steel Rivets. These tests are all practical, and the originals may be seen in the office of the company, or if anyone desires to repeat the tests for his own satisfaction, sample rivets will be sent upon application. In the back of the catalogue is a series of illustrations showing some of the important work in which Champion rivets have been used, such as the United States cruisers *Washington* and *Des Moines*, the Great Northern steamship *Minnesota*, the Russian cruiser *Variag*, the great locomotive No. 989 made by the American Locomotive Company, the United States Custom House in New York City, various water-tube and Scotch boilers, dry-docks, bridges, office buildings, etc.

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OF

International Marine Engineering

FOR

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"High Speed Sensitive Drills" are the subject of catalogue No. 30, issued by the Fox Machine Company, Grand Rapids, Mich. "There is no class of machinery more widely used than sensitive or high-speed drills. While not an expensive part of a machine tool equipment they are vital nevertheless and should be carefully chosen. Their use should be much more universal than it is. Small holes cannot be drilled with a large machine without having the breakage in drills a serious matter. Wherever two or more different sized holes have to be drilled in the same piece, or drilling and tapping or reaming has to be done in the same piece a multiple spindle drill should be used so that all the work can be completed in one handling of the piece and one setting in the jig will be sufficient. A detailed comparison with all competing machines and a careful consideration of both quality and price usually leads to the placing of at least a trial order for Fox drills. We ask for nothing more."

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

ARE YOU LOOKING FOR A PRODUCER FOR YOUR BOAT?

THE MARINE GAS PRODUCER CO.

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BOSTON, MASS.

We are prepared to furnish GAS PRODUCERS of suitable size to run MARINE ENGINES from 25 to 100 H. P., using Anthracite Pea Coal as fuel. These PRODUCERS are light in weight, occupy small space and head room, are reasonable in first cost, and show great economy in operation over either steam or gasoline.
They can be used with almost any make of four-cycle gasoline engine, by making some slight changes in the engine.
They may be installed, in connection with engines already in use, at some sacrifice of capacity.

UNITED STATES METALLIC PACKINGS FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

RELIABLE—SATISFACTORY—EFFICIENT

The United States Metallic Packing Co.

427 N. Thirteenth St., PHILADELPHIA CHICAGO, 509 Great Northern Bldg.

"Asbestos Papers," "J-M Asbestos Lead Joint Runners," "Noark Fuse Plugs" and "J-M Insulated Arc Lamp Hangers" are the titles of folders recently published by the H. W. Johns-Manville Manufacturing Company, 100 William street, New York City.

Eighty Pages on Lubrication.—The actual experience of practical men and the scientific experiments of learned authorities are concentrated in Dixon's latest book, "Graphite as a Lubricant," tenth edition, published by Joseph Dixon Crucible Company, Jersey City, N. J. Every one interested in machinery will find lots of valuable information in this attractive volume. Sent free to those interested—write for copy No. 75-C.

Light milling machines are described and illustrated in catalogue No. 29, published by the Fox Machine Company, Grand Rapids, Mich. The company states that its attention was called to the fact that the field for specializing the manufacture of light milling machines was unoccupied, and that it was very apparent no one had made any successful effort to meet the special need for manufacturing light millers. After investigating the field for machines of this type the company went to work and the results speak for themselves.

"Pattern Shop Equipment" is the title of a handsomely illustrated catalogue of 64 pages, published by the Fox Machine Company, Grand Rapids, Mich. This catalogue includes a full line of tools the company places on the market, especially for pattern shop use. Prices for equipment will be sent upon application. The company issues separate catalogues of its machine tools and woodworking tools, and will forward these or any other of its catalogues upon request to any readers mentioning this magazine.

The monthly stock list issued by the Bourne-Fuller Company, Cleveland, Ohio, shows in detail the line of iron and steel materials the company has in its warehouse for the accommodation of customers whose requirements cannot await deliveries from the mills. Such shipments, however, are but a part of this company's business. Through close connections it is prepared to ship directly from the mills to its customers all orders or contracts in the way of merchant iron and steel and pig iron and coke. All of our readers who will mention this magazine will be placed on the company's free mailing list to receive the stock list regularly.

"Reliance" water columns and steam traps are the subject of literature distributed by the Reliance Gauge Column Company, Cleveland, Ohio. Regarding the company's water columns, the statement is made that over 38,000 are in daily use, that they have been on the market for years, and that they are in use in every State and Territory of the United States and in many foreign countries.

"Alundum, its Invention and Use," is the title of a pamphlet published by the Norton Company, Worcester, Mass. This pamphlet traces the development of grinding, beginning with the old-fashioned grinding stone, followed by the emery wheel up to the Norton Company's new product, called Alundum, which the company manufactures in an electric furnace plant at Niagara Falls.

Marine engines, centrifugal circulating pumps, lumber and freight hoists, marine boilers and marine electric sets and surface condensing apparatus are the subject of the 1908 supplement to catalogue No. 17, published by Marine Iron Works, Station A, Chicago, Ill. Those of our readers who already have catalogue No. 17 will certainly wish to receive this supplement. Either the supplement, the main catalogue, or both, will be sent free upon request, to those mentioning INTERNATIONAL MARINE ENGINEERING.

TRADE PUBLICATIONS
GREAT BRITAIN

Sanitary appliances are the subject of a fully illustrated catalogue of 36 pages, published by George Gennings, Ltd., 63-67 Lambeth Palace Road, London, S. E. This firm makes a specialty of sanitary appliances for marine use.

Metallic packings are described in a 70-page illustrated pamphlet published by Lancaster & Tonge, Ltd., Pendleton, Manchester. This catalogue states that "The Lancaster" patent metallic packings have been supplied to the British and many foreign navies and to the principal engineers in Great Britain and abroad. Appended in book form will be found the experience of users. The packings they refer to were all supplied on approval and guaranteed, and the company still adheres to this feature of its business.

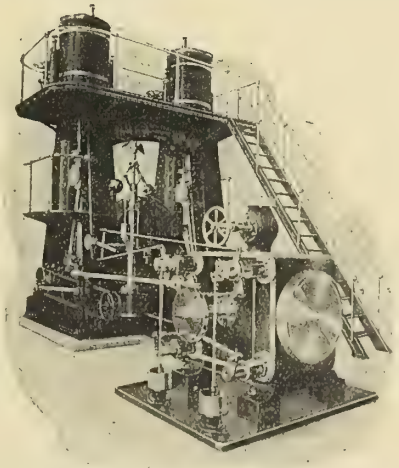
REFRIGERATING AND ICE MAKING MACHINERY

ECONOMICAL

STRONG MATERIALS

BEST WORKMANSHIP

HIGHEST EFFICIENCY



MAXIMUM EFFICIENCY FOR MINIMUM OPERATING AND REPAIR EXPENSE GUARANTEED

"Great Lakes" Refrigerating Machine
Write for Catalogue "B"

GREAT LAKES ENGINEERING WORKS
DETROIT MICHIGAN

ANTONIO C. PESSANO, President and Gen'l Manager
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H. W. HOYT, Vice-President
JOHN R. RUSSEL, Secretary and Treasurer

Illustrations of machinery manufactured by W. H. Allen, Son & Company, Ltd., Queen Engineering Works, Bedford, are shown in catalogue No. 25 which this firm is distributing. This catalogue consists of several sections, giving illustrations of this firm's machinery. Section 1 is devoted to open and enclosed engines; the next section to surface and jet condensing plants; the third section illustrates centrifugal and turbine pumps, and the last section forced and induced draft fans.

"Patent Pilot Packing" is the subject of folders distributed by the Beldam Packing & Rubber Company, 93 and 94 Gracechurch street, London, E. C. "Pilot packing is a combination of asbestos and white metal, manufactured on scientific principles which ensure the following advantages: 1. The metal in the packing is concentrated on the actual wearing surface and forms a continuity of metal on the rod. 2. In actual use the pressure of the gland forces the white metal on to the rod and a series of white metal rings (asbestos protected) is formed in the stuffing box. 3. The rods are kept as smooth as glass, and cannot possibly be scored. 4. The highest temperatures do not affect this packing. 5. It is perfectly pliable and its durability is very great. Pilot packing is specially designed to stand the highest pressures, and is in use in a number of steamers, etc., working at 220 pounds and upwards. Any size supplied in lengths or in rings."

Pistons and piston valves are described and illustrated in an illustrated pamphlet published by Lancaster & Tonge, Ltd., Pendleton, Manchester. "Our piston packings have stood the test of over twenty-one years' experience, during which time over 30,000 have been sold. They secure a steam-tight piston with a minimum of friction, and are very simple in construction, whilst they are self-adjusting and reliable even in unskilled hands. They are used by many of the principal marine, stationary and traction engine builders, many specifying them exclusively. Three firms alone have had over 6,000 sets, ranging up to 110 inches diameter. Large numbers have also been supplied for marine purposes, and they are in use on some of the largest liners, the North German Lloyd having given us many repeat orders during the last few years. We still continue to supply new customers with Lancaster piston rings and springs on approval for three months' free trial, and we guarantee the efficiency of these piston packings at all pressures and speeds."

"Ships' Fittings" and "Ships' Side Lights" are the titles of illustrated catalogues published by Carron Company, Stirlingshire. These catalogues and others issued by the same company embrace almost every kind of ships' fittings and furnishings, and should be in the hands of every shipbuilder and steamship company, and a free copy will be sent to all of our readers mentioning INTERNATIONAL MARINE ENGINEERING. Regarding Carron Company's patent saloon lights and other fittings the statement is made that they are used by the leading shipping companies throughout the world and that they have been adapted by the Admiralty.

Piston rings, metallic packing, steam driers, steam traps, etc., are described and illustrated in a booklet published by Princeps & Company, Sheffield. Regarding this company's combination metallic packing the statement is made: "This is a cheap form of a floating metallic packing designed to meet any class of engine; it is designed so as to enable you to use the present gland and neck ring, and takes the place of ordinary asbestos. It is adjusted by screwing up the gland with the fingers only; this is quite sufficient to withstand 120 pounds boiler pressure. The anti-friction metal rings only are in contact with the rod, and they are free to move in any direction with the rod without breaking joint; the expansion of the compo gives the required pressure to the packing rings to keep them in contact. We have had numerous enquiries for a cheap form of a floating metallic packing that can be easily applied, which has induced us to put this packing on the market."

The "Griffin" improved patent system of low-tension magneto electric ignition is described in a pamphlet published by the Griffin Engineering Company, Ltd., Bath. "While fully recognizing the inherent advantages of the magneto as a sparking agent, the Griffin Engineering Company, Ltd., have hitherto (in view of the serious difficulties above described) refrained from fitting their motors with this system, pending their elimination. For some time past we have given special attention to these various points, and carried out a series of experiments with a view to improving and generally simplifying the entire system, with the gratifying result that under the protection of three distinct British and foreign patents, we have satisfactorily overcome all difficulties, and rendered the entire system absolutely simple and efficient, at all speeds and compressions, either high or low, and equally suitable for either single or multi-cylinder motors of any power."

CHARLES GRIFFIN & CO., Ltd., Publishers, London, ENGLAND.

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Press Opinions: "The book is a most valuable and comprehensive treatise on a subject of the greatest importance to engineers."—*Engineering.*
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Steam steering gears and ash hoists are described and illustrated in a catalogue issued by Carron Company, Stirlingshire.

Engineering specialties of many kinds, such as portable dynamometers, continuous double diagram indicators, patent pocket pitchometers and speedmeters are the subject of illustrated circulars published by Dobbie McInnes, Ltd., 45 Bothwell street, Glasgow.

"Sanitary Appliances for Ships" is the title of a very fully illustrated and handsomely printed catalogue of 138 pages, issued by Shanks & Company, Ltd., 81 New Bond street, London, W. This is the most complete catalogue in its line that we have ever seen, and it should be in the hands of every shipbuilder, ship owner and naval architect. A free copy will be sent to every reader mentioning INTERNATIONAL MARINE ENGINEERING.

"Positive Lubrication" is the title of a folder published by the Combination Metallic Packing Company, Ltd., Gateshead-on-Tyne. This company's sight feed automatic oil pump is a force feed lubricator, the oil under great pressure being forced through small tubes to the spot where it is needed. It is not a ram but a genuine reciprocating pump. It does not require the constant attention of the engineer but starts and stops with the engine. Many other advantages are claimed for this pump.

Portable electric drilling machines are described in an illustrated catalogue mailed by the Light Electric Motor Company, Ltd., Ilford, Essex. This machine is designed for engineers, shipbuilders, boiler makers, bridge builders, etc., and also may be connected to any incandescent lighting circuit. It is said that owing to the special construction of the motor no over-load cut-out is necessary; that is to say, should the drill "stop dead" in going through a hole no immediate burning out of the motor can take place.

A catalogue and price list of forgings, drop forgings and stampings is issued by the Central Marine Forge, West Hartlepool. This company makes forgings for stern frames, rudder posts and frames, keel bars, stem bars, iron and steel shafting, connection rods, piston rods and other heavy forgings in iron and steel to 17 tons in weight, and drop forgings in iron, steel, nickel steel, aluminum, copper and Muntz metal from 1 ounce to 1 cwt. in weight. Since its establishment the Central Marine Forge has made about 500 large stern frames.

"The Metallic Packing that is Used in Twenty Navies, 800 War Vessels, 1,000 Passenger and Merchant Vessels" is the title of a folder published by "Combination" Metallic Packing Company, Hillgate, Gateshead.

The 1907-8 calendar issued by the Armstrong College, Newcastle-upon-Tyne, is a volume of 400 pages. This college has complete courses in naval architecture, engineering, electrical engineering, mining, metallurgy, agriculture, pure science and letters. Full particulars may be obtained from F. H. Pruen, Esq., secretary of the college.

"Lion" packings are the subject of a catalogue published by James Walker & Company, "Lion" Works, Garford street, West Indian Dock Road, London, E. This firm makes a specialty of packing for steam hammers, "Poplar" packings for low-pressure, circulating and air pump valves, and, in fact, all kinds of packing.

BUSINESS NOTES

AMERICA

"A NEED BRINGS FORTH A REMEDY."—That a remedy is necessary when making up a pipe joint is the statement made by the Edgecombe Company, Cuyahoga Falls, Ohio, and the remedy it offers is its "Red Cross" pipe joint compound. The company states that "science has not been able to produce a steel which will not wear, and it is evident that the only way to solve this problem is to use some material which will fill the spaces when making up the joint. If we could find a material as lasting as the pipe itself the joint would be as perfect as a jointless pipe. In the past we have depended upon red and white leads to accomplish this result, but neither has ever done it. Both are poisons. Both are chemical compounds and readily decomposed by the electric current, and neither of them has the body requisite to insure life—they are simply thick paints that dry hard, and you have to break the fitting to take down a joint. Modern research has produced a material which will fill all these spaces, even the minute ones, and with a material as durable as the iron itself, as it cannot be destroyed or changed in form. Red Cross Pipe Joint Compound is warranted to do all this. It is sent to any person with an agreement that if it does not fully fill the bill you are under no obligations to pay for it, or if you did pay for it your money is returned."

Particularly adapted for Court Houses, Banking Institutions, Church Aisles, Hospitals, Libraries, Business Offices, Restaurants, Vestibules, Elevators, Kitchens, Laundries, Pantries, Bathrooms, and for Steamships and floating property generally.

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LONDON, E. C., ENGLAND, 58 Holborn Viaduct

THE MACKINNON BOILER & MACHINE COMPANY, Bay City, Mich., is installing additional machinery in its boiler works, consisting of a Kling rotary shears, capacity ¾-inch plate; Lennox bevel shears, capacity ¾-inch plate; Whiting punch, 48-inch throat, with structural jaw, and a high-speed cold saw with a capacity of cutting a 15-inch 42-pound beam in 28 seconds.

THE PENBERTHY INJECTOR COMPANY, Detroit, Mich., was organized in 1886. "The president of the company, Mr. S. Olin Johnson, was at that time the general manager of the Detroit Knitting & Corset Works. The inventor of the original Penberthy injector was one William Penberthy, of Leadville, Col., who on his way East stopped at the exposition at Chicago, held during that year, where he saw an exhibit of an automatic restarting injector, which so interested him that he devised what he thought to be an improvement. This injector was brought to the attention of Mr. Johnson, a test was made, which proved fairly satisfactory and a patent was applied for and granted. Mr. Johnson set aside in the building of the corset works a room about 20 by 30, and installed therein a tool lathe and two brass lathes and began the manufacture of the injector which was at the time of the organization of the company called Penberthy. It is a matter of history unknown to the general public that the injector, so called, and invented by Mr. Penberthy was an absolute failure. There were 170 of these injectors made, and within sixty days after they were sent out they were recalled and melted up. In the meantime the company had improved on the original injector, manufacturing 4,000, which proved very satisfactory. Experiments developed another still better machine, of which some 12,000 were made and sold. At about this time the superintendent of the company, Mr. Thomas J. Sweeney, invented the injector that has since then been sold by the Penberthy Injector Company throughout the world, no changes having been made after the first 16,000 were manufactured. The business of this company extends all over the world. There is no country of any importance on the globe to which Penberthy injectors have not been sent." In addition to injectors, the company manufactures a large line of boiler and engine room appliances, such as lubricators, oil and grease cups, water gages, gage cocks, etc., all fully illustrated and described in a 70-page catalogue which will be sent free to readers mentioning this magazine.

MORTUARY VAULTS AND ANTI-MARINE BURIAL ASSURANCE.—In spite of the great increase in the size and magnificence of ocean-going passenger steamers during recent years, there is one feature which has not kept pace with the advance of improvements in the service in general. We mean facilities for taking care of the bodies of passengers who die at sea. The present mode of disposing of the bodies of passengers who die on board ship is either to drop them overboard, or in some unsatisfactory or make-shift manner to preserve and land them; in the latter case with much trouble to the steamship company and at great expense to the family of the deceased. To remedy this state of affairs, Mr. Walter S. Upshur, Newport News, Va., has invented and patented a mortuary vault and coffin, and has copyrighted a form of anti-marine burial assurance to be issued to passengers on steamers installing the mortuary vaults and coffins. In the contract, the steamship company using Mr. Upshur's mortuary vaults will, in the event of the passenger "dying aboard said steamship during said voyage, preserve his body aboard said steamship until arrival at the port of ————, where it will be embalmed, placed in a hermetically sealed metallic casket and disposed in the receiving vault for a period of ten days, or such less time as may be necessary for the ———— steamship company to communicate with" the relatives of the deceased, and to ascertain what disposition they wish to be made of the body. The steamship company also agrees at the expiration of the ten days either to inter the body in an appropriate manner free of additional cost at the port of arrival, or, at the request of the relatives of the deceased, to return it to the port from which the dead passenger embarked. The suggested cost of this assurance is $5.00. The vaults will be constructed of mild ship steel, commercial shapes being used. The refrigerating coils are to be made of wrought iron galvanized pipe, secured in racks on the inside of the frame, and the vaults will, of course, be air-tight and furnished with a suitable thermometer. The caskets will be 7 feet long, lined with zinc and made water-tight. The public has been made familiar through the newspapers during the past few months with several very distressing cases of burial at sea, so that this invention of Mr. Upshur's is likely to attract the favorable attention of steamship companies as well as passengers. Attention is called to his two-page advertisement in this issue of INTERNATIONAL MARINE ENGINEERING.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality. It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

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"Cog Wheel Brand." The best qualities made.

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PLASTIC WHITE METAL.
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REGARDING HANNA RIVETERS, made in any style, any size and any pressure, for all riveting purposes, the Hanna Engineering Company, 820 Elston avenue, Chicago, Ill., makes the following claims: "Hanna riveters drive absolutely tight rivets with every stroke, because maximum pressure is reached at one-half piston travel and uniformly maintained throughout balance of stroke. No adjustment necessary for ordinary variations. You cannot obtain tight rivets without a known pressure; we give it to you. Obviate entirely the necessity of cutting out and re-driving loose rivets. Reduce the cost of pneumatic hammer riveting fully one-half. A practical substitute for the hydraulic outfit at materially reduced initial cost. Price within the reach of the smallest boiler or structural shop. Hydraulic results guaranteed, due to the Hanna motion; it is distinct. Don't confuse it with any other. There is nothing else like it. Every riveter carries with it the guarantee of Hanna results. Any riveter user can tell you what that means. In asking for prices, etc., give reach, gap, size of rivets and class of work."

AJAX BULL BABBITT is the name the Ajax Metal Company, Philadelphia, Pa., has given to a special brand of babbitt metal made exclusively by that company, and is always poured into ingots having on their upper faces the impression of a bull's head. "This metal was designed for general purposes and answers in ninety-nine cases out of a hundred where genuine babbitt is being used. It is a babbitt costing only about half as much as genuine, and in most cases will do better work. It can be used for all bearings except those carrying an extremely heavy load, and will run cool at any speed. We are selling tons of this metal every month, and it is giving entire satisfaction wherever used."

CONCERNING LIFTING MAGNETS.—With the exception of articles which have appeared from time to time in a few technical publications, very little has been printed on the subject of lifting magnets. Those interested in these labor-saving devices will therefore welcome a 32-page pamphlet just issued by the Cutler-Hammer Clutch Company, Milwaukee, Wis., in which the subject is fully treated. The booklet in question contains a number of full-page illustrations, showing lifting magnets handling pig iron, steel stampings, castings, scrap and other material, together with diagrams, data on current consumption, information on lifting capacity of magnets, etc. A new cable take-up device is also pictured and described, and reference is made to the Cutler-Hammer system of control, by which the strong inductive reaction, or "kick," which occurs when the circuit is suddenly opened on a magnet coil, is automatically shunted to a discharge resistance, thus protecting the magnet insulation by dissipating the energy of the induced voltage outside of the coil itself.

A PRISMATIC WATER GAGE for marine, stationary and locomotive boilers has been placed on the market by the Ashcroft Manufacturing Company, 85 Liberty street, New York City. This gage has been designed to meet the demand for a gage which would overcome the disadvantages of the ordinary gage glass and other gages of this type. The construction and points of superiority are stated by the manufacturer to be as follows: "The glass and its casing are so designed that the water shows black and the steam space takes on a silvery appearance, which makes it impossible to mistake the water level. In the ordinary water-gage glass it is often impossible to see at all the water level, especially if the boiler has a tendency to foam The glass in the Ashcroft prismatic water gage is a flat glass of peculiar design, quality and temper, and will not break even under the highest pressures and sudden changes of temperature. The frequent breakage of glasses in the locomotive cab or the boiler room of a stationary plant results, in many cases, in injury to men there; also in considerable expense in renewals. The opening in the front of casing is shaped to give the maximum angle of vision. The frame in which the glass is mounted consists of a front and back casting, each with a seat accurately machined to a true surface for back gasket and front pad, which are interposed between the finished surfaces and glass. This insures tight joints—very important features. The back and front castings are clamped together by a liberal number of cap screws to give a well distributed pressure on the packings and glass—an essential point to insure a tight gage. Both the back and front castings are of unusually stiff section and the back is heavily ribbed to insure its remaining straight and true under all conditions. The metal used in these castings is the highest grade steam bronze mixture throughout, and the quantity and distribution of the metal is such that they are proof against strain and distortion under all conditions. This is probably the most distinctive feature of the Ashcroft gage."

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC

A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
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ELISHA WEBB & SON COMPANY, ship chandlers and engineers' supplies manufacturers, have removed to 136 South Front street, Philadelphia, Pa.

MR. WILLIAM S. LOVE, who for the past eight years managed the business of the Wheeler Condenser & Engineering Company in the Central West, and who has been in New York for the last year as general sales manager, will resume charge of the Chicago office of the company at 1137-8 Monadnock building on Jan. 1, 1908. Mr. Love's large circle of friends and acquaintances will be pleased to again receive his direct personal attention in this large and important territory.

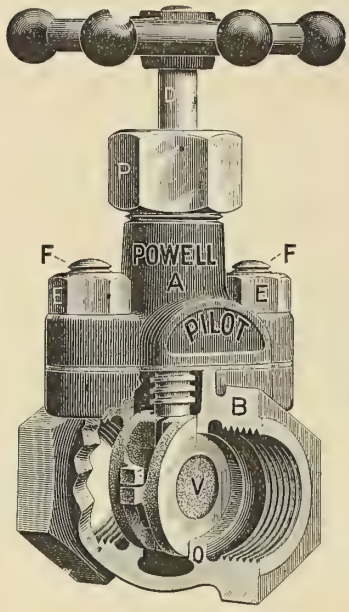
MARINE UNDERWRITERS AND SUBMARINE SIGNALS.—It is of the highest importance to marine underwriters to know what ships are receiving submarine signals, so that they can justly estimate the risk on a vessel and cargo. For this reason the American Bureau of Shipping will note the fact of such equipment in the 1908 edition of the *Record of American and Foreign Shipping*. In connection with the name of each vessel having the submarine signal apparatus the abbreviation "Sub. Sig." will be printed. Also the Bureau will keep on file full information in regard to additional vessels and stations equipped, so that underwriters and others can always keep themselves informed as to the advances in safety of navigation made by the extension of submarine signals.

THE RYERSON STAYBOLT CHUCK, made by Jos. T. Ryerson & Son, Chicago, Ill., is designed for the rapid insertion of stay-bolts either by means of an air drill or other available power. "Its use does away with the necessity of squaring the ends of the bolts, which is the usual practice at the present time, while its arrangement is such that it is always available for any size stay-bolt, without adjustment. The gripping device is absolutely positive in its action, thus precluding any possibility of the bolt slipping while it is being screwed into the sheet. When a stay-bolt has been inserted in the sheet it can be instantly released from the chuck by simply turning it in the opposite direction. The chucks are fitted with Morse taper shanks for standard sizes of air drills and are so simple in construction that it is almost impossible for them to get out of order. The chuck consists of two parallel circular plates secured together by means of bolts, the middle portions of which are larger than the ends, so as to form shoulders for the plates to rest upon. These bolts also serve as pivots for the grippers. Eeach gripper consists of a segmental gear extended at one end to form a cam, and provided with a curved serrated face to grip the stay-bolt which is inserted through the hole in the middle of the chuck. The gears intermesh with teeth mounted between the two plates. The teeth are arranged so that they will swing like a pivot when the shank is turned. From this it will be readily seen that when the power is applied to turn the chuck, the teeth will grip tighter, and as the resistance increases the grip will increase in proportion to it. This, as has been stated above, makes it absolutely impossible for the bolt to turn in the chuck when in use. The Ryerson chuck is made of the best material throughout, and each is thoroughly tested before leaving the shop. Prices and full particulars will be furnished on request."

BENJAMIN WIRELESS CLUSTER PATENT SUSTAINED.—Friday, November 15, 1907, the Circuit Court of Appeals for the Second Circuit (Judges Lacombe, Coxe and Ward), rendered a decision sustaining claims five and seven of the Benjamin Wireless Cluster patent No. 721,774, dated March 3, 1903. The suit was that of the Benjamin Electric Manufacturing Company against the Dale Company and John H. Dale, and involved the Dale multiple wireless cluster, which was first placed upon the market by the Dale Company in the spring of 1904. The case originally came before Judge Holt, of the Circuit Court, and he sustained the validity of the Benjamin patent, but he held that the Dale cluster did not infringe. The Court of Appeals, while confirming Judge Holt as to his finding of validity, reverses the lower court on the question of infringement and finds that the Benjamin patent as to claims five and seven is infringed by the Dale wireless cluster. A second suit brought by the Benjamin Electric Manufacturing Company against the Dale Company and John H. Dale concerns the series wireless cluster marketed by the Dale Company. An order has heretofore been entered in this second suit providing for an injunction and accounting as to the Dale series cluster in case the court entered an injunction and an accounting as to the multiple cluster involved in the first suit. The litigation has been closely contested by both sides, and has occupied the attention of the courts during the past three years. Complainant was represented by the firm of Jones, Addington & Ames (William H. Kenyon and W. Clyde Jones of counsel), and the defendants by Rosenbaum & Stockbridge. The company's line of wireless clusters thus sustained by the courts of last resort is extensively used in marine lighting, and said to be admirably adapted for this purpose.

The Powell Pilot Brass Mounted or All Iron Gate Valve

A Double Disk Iron body Gate Valve for medium pressures. The body is strong and compact with heavy lugs carrying stud bolts E. The stud holes in lugs of bonnet cap A, being accurately drilled to template, permits the valve to be assembled any old way. No matter how you handle it after taking apart, it always fits.



The Double Brass Disks, made adjustable by ball and socket back, are hung in recesses to the collar on the lower end of the stem. Stem is cut to a true Acme thread, the best for wear.

The Powell Pilot Gate Valve is also made ALL IRON. For the control of cyanide solutions, acids, ammonia and other fluids that attack brass, it has no equal.

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If YOUR jobber does not have them in stock--ask us who does.

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A full and complete course of instruction in Lake and Ocean Navigation and Marine and Stationary Engineering. Also special branches taught those desiring to qualify themselves for better positions in the Marine Service. Students taught by correspondence. Students may begin at any time. Diplomas will be issued to all graduates passing satisfactory final examinations. Send for Circular.

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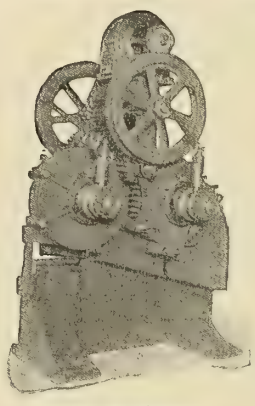
Masonic Temple, Chicago, Ill.
W. J. WILSON, Principal (Late Lieutenant, U. S. N.)



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Made in 5 sizes to cut from 3" to 6" angles. Cutting plates any length from ¼" to ⅝". Trimming plates up to ¾" and bars equal these capacities.

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Most Useful Tool for Boiler Shops

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Compound
CLEAN TO USE — PREVENTS RUST — NEVER HARDENS
TRADE MARK REGISTERED
MANUFACTURED BY THE EDGECOMBE COMPANY
CUYAHOGA FALLS, OHIO, U. S. A.

SENT ON APPROVAL FOR THIRTY DAYS' TRIAL

Guaranteed to make your pipe joints tight when steam is turned on, and to keep them tight.

Red Cross Pipe Joint Compound is for screwed joint work, and service with steam, water, gas, and air, it is over 50% solid mineral matter, which is not affected by superheated steam, acids, alkali, or even a red heat—the compound is so fine that it will fill the most minute crevices in the joint, and is the only material which has given good results with Superheated Steam.

We can refer you to parties who REPEAT their orders and pay $1.00 express charges on a 70c. can:—to jobbers who write other jobbers 500 miles away, and ask them if the story some user has told them holds true in their trade, and as a result of the reply become our customers:—and to others, who order it and have it shipped to them, over 4,000 miles away, rather than use the other kinds they could readily obtain.

We make this Dark Colored for steam, water and iron pipe work; and Light Colored for fine plumbing, brass and nickel pipe work. The price is only 70c. for a half-gallon can, of either kind, or $4.20 for a case of six of these cans.

Note the reduced size cut of the label which is on every can.

MANUFACTURED ONLY BY

The Edgecombe Company

Cuyahoga Falls, OHIO, U. S. A.

THE HAUCK PATENT BURNERS and oil-burning appliances, made by the Hauck Manufacturing Company, Richards street and Hamilton avenue, Brooklyn, N. Y., have been installed in many ships of the United States navy and in shipyards and repair shops throughout America. A copy of this company's catalogue will be sent upon request to any of our readers.

MR. GEORGE A. GALLINGER, heretofore traveling from the Chicago office of the Independent Pneumatic Tool Company, has been appointed manager of the company's Pittsburg office at 1210 Farmers' Bank building. The Independent Pneumatic Tool Company now carries, in Pittsburg, a complete line of Thor pneumatic tools and spare parts.

THE NICHOLSON SPEED INDICATOR is designed to tell the speed of motor boats. The hand points to the speed the boat is making through the water at the time of observation. Every variation of speed will instantly be shown on the dial. The same principle is used in installing on motor boats as on large steam ships. This indicator is made by the Nicholson Ship Log Company, Cleveland, Ohio.

THE PUZZLE OF THE SUSPENDED BALL.—The American Blower Company's exhibit at the recent annual convention of the American Street and Interurban Railway Association and its allied associations at Atlantic City was exceptionally interesting. The suspended ball feature which attracted so much attention at the M. M. and M. C. B. conventions in June, proved equally interesting to the street railway officials and their friends. The visitors worked their slide rules in vain in an effort to determine why the ball retained its position, and the real explanation had to be often repeated by the representatives in charge. Any one sufficiently interested in this unusual phenomenon to desire an explanation can secure same by addressing the American Blower Company at Detroit, Mich.

THE GENERAL OFFICES of the Wheeler Condenser & Engineering Company will be removed from 90 West street, New York, to the works at Carteret, N. J., on Jan. 1, 1908, and all the present New York employees transferred there. The company is erecting a very extensive addition to its present office building in Carteret to accommodate the increased force and to provide room for the executive offices. The drawing room will be enlarged and occupy practically the entire upper floor of the office building, while additional room will also be provided for the engineering department proper. A kitchen from which luncheon will be served at noon will add to the comfort and convenience, and also give that opportunity for the heads of departments to meet daily, which has been found of such value and help in similar large establishments.

A FREE SAMPLE OF PAINT.—Crysolite paint conquers corrosion, according to Semet-Solvay Company, Syracuse, N. Y., which makes the following statement: "Making paint is not our business, but we are operating eleven retort coke oven plants, which contain an immense amount of structural iron and steel, and numerous corrugated iron buildings, metal roofs, steel stacks, storage tanks, etc. We found, if we did not wish to rebuild our plants every few years, we would have to paint them with something better than we could buy. Our technical men took up the problem and after much experimenting produced Crysolite. It has saved us a large sum of money, protecting our plants very efficiently under a great variety of severe conditions. Possibly it is just the material you are looking for, and the only way to find out is to try it. A sample will be sent, without charge, to any responsible party, and full information given to any one interested."

VESSELS CLASSED AND RATED by the American Bureau of Shipping, 66 Beaver street, New York City, in the *Record of American and Foreign Shipping:* American schooner *William M. Mills,* American schooner *Nassau,* British schooner *Scotia,* American schooner *Oneida,* British schooner *Princess of Avon,* American schooner *Agnes Manning,* American schooner *Samuel W. Hathaway,* American schooner *N. E. Ayer,* American schooner *Hannah F. Carleton,* American schooner *Dean E. Brown,* American schooner *Three Marys,* American schooner *Elvira Ball,* American 3-masted *William W. Converse,* British 3-masted *Hieronymus,* British 3-masted *Rescue,* American 3-masted *John J. Hanson,* British 3-masted *Leonard Parker,* British 3-masted *Roseway,* British 3-masted *Evelyn,* American 3-masted *Charles Noble Simmons,* American 3-masted *Horatio L. Baker,* American 3-masted *Daisy Farlin,* American 3-masted *Francis V. Sawyer,* American brig *Glendower,* American Brig *Merriam,* American brig *Preston,* American brig, *Pocomoke,* American brig *Burnside,* American brig *Suffolk,* American brig *Lincoln,* American brig *S. T. Co. No. 4,* American barkentine *Rachel Emery,* American half bark *John McDermott,* Mexican half bark *Iona,* Russian *Laine.*

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AN UP-TO-DATE POWER PLANT.—What is stated to be the most up-to-date, and for its size the most economical, power plant in the United States, is that of the Philadelphia Auto Transit Company, at 31st and Dauphin streets, Philadelphia. This plant furnishes power for charging the storage batteries of the auto transit company's big electric automobiles. In describing the mechanical equipment of the plant it will perhaps be well to start with the boilers. These are of the Heine water-tube type, fed by two C. H. Wheeler feed pumps—one always in reserve—and furnish steam at 165 pounds per square inch pressure for three 150-horsepower De Laval steam turbines, each driving two 50-kilowatt generators. The exhaust from all the engines can be turned into either a condensing or non-condensing header, and in cold weather the exhaust from one turbine will be used for heating the building. Ordinarily, however, all the turbine exhaust goes to the condenser, the exhaust from auxiliaries being sufficient for the feed heater needs. The efficiency of a turbine-driven plant is so entirely dependent upon a good vacuum that in this installation the condenser was selected with especial care; and its performance so far has amply justified the choice. It is the C. H. Wheeler improved type with 1,500 square feet of cooling surface, and a condensing capacity of 12,000 pounds of steam per hour. The vacuum is maintained by a Wheeler-Mullan suction valveless air pump. This pump removes both air and water in one operation, is extremely simple and compact, and, having no fragile parts, is almost impossible to damage. It is guaranteed to hold a 28-inch vacuum under normal conditions, and because of this high vacuum capacity is especially valuable for turbine installations. Since city service water is too expensive to be used at the rate of 1,000 gallons per minute for cooling in the condenser, a notable economy has been attained by the installation of two Wheeler-Pratt cooling towers. These are located on the roof of the building, and cool 1,000 gallons of water per minute from the condenser temperature to about 75 degrees F., depending upon weather conditions. The water is circulated through the condenser and elevated to the top of the towers by two centrifugal pumps; one, for ordinary loads, is of 15 horsepower, driven by a De Laval steam turbine, and a second, for lighter loads, is 5 horsepower and motor driven.

BUSINESS NOTES

GREAT BRITAIN

AN ORDER HAS BEEN SECURED by Messrs. Richardsons, Westgarth & Company, Ltd., for a 450-horsepower gas engine for using producer gas at the Mitsu Bishi Dockyard, Kobe, Japan.

MESSRS. HAWTHORN, LESLIE & COMPANY, engineers and shipbuilders, Newcastle and Hebburn-on-Tyne, have been awarded the Grand Prix for their exhibits of ships' models at the International Exhibition at Bordeaux.

LOWE & FLETCHER, ADMIRALTY CONTRACTORS, combination works, Church street, Willenhall, Staffs, occupy very extensive premises and carry a large stock of all classes of ships' locks.

EDWARD HAYES, Stony Stratford, has recently received orders for steel plated launches and tugs, and marine engines and boilers for the Nile, Jamaica, Ivory Coast, Delagoa Bay, Persia and Sierra Leone.

A THIN TUBE BENDING MACHINE is made by M. A. Hughon & Company, 9 Connaught street, London, W. This machine and its steel ball articulating mandrels are patented, and the claim is made that with it no resin or lead is required; no loading and no filling of any sort. All the bends are made cold, unloaded, at an average of a few hundred a day by a single mechanic hand.

EXHIBITION HONORS FOR CLYDE BUILDERS.—Messrs. William Simons & Company, Ltd., Renfrew, have been awarded the Grand Prix at the Bordeaux International Exhibition for their exhibits of dredging plant and elevating deck steamers. Messrs. the London & Glasgow Shipbuilding Company, Govan, and Messrs. Alex. Stephen & Sons, Linthouse, have been awarded similar honors.

THE GRAND PRIX has been awarded by the Exposition Maritime de Bordeaux to Heath & Company, Crayford, London, S. E., for its exhibition of mathematical, nautical and scientific instruments. A full account of this company's exhibition is contained in *Le Bulletin Universel des Expositions*, dated Sept. 10. Those interested may secure a copy by writing the Messrs. Heath & Company. The above mentioned article in the *Bulletin* states: "It is the English (incomparable navigators) that possess the best instruments." The article goes on to state that the exhibition of Heath & Company is most remarkable. Three pages and several illustrations are devoted to this company's products.

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A DIGEST OF THE SEVERAL SHIP CLASSIFICATION SOCIETY RULES

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   - (b) Rules and Regulations for the Construction of Steel Yachts.
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   - (c) Rules and Regulations for the Construction of Steel Vessels for Sound, Lake, Bay and River Service. Also for Yachts and Tugboats.
3. **BUREAU VERITAS.**
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   - (b) Rules and Regulations for the Construction of Oil Tank Vessels.
4. **GREAT LAKES REGISTER.**
   - (a) Rules and Regulations for the Construction of Steel Vessels.
   - (b) Rules and Regulations for the Construction of Oil Tank Vessels.
5. **BUREAU OF CONSTRUCTION AND REPAIRS U. S. NAVY DEPARTMENT.**
   Rules for Riveting of Naval Vessels.
6. **BOARD OF SUPERVISING INSPECTORS OF U. S. STEAMBOAT INSPECTION SERVICE.**
   Rules and Requirements of Said Board.
7. **THE UNITED STATES STANDARD REGISTRY OF SHIPPING.**
   Width of Butt Laps: Butt Straps: Edge Strips and Seam Laps. Riveting Schedule.
8. **THE BRITISH CORPORATION FOR THE SURVEY AND REGISTRY OF SHIPPING.**
   Width of Butt Lap: Butt Straps: Edge Strips and Seam Laps. Riveting Schedule.

There are 160 printed pages, printed only on right hand pages. The left hand pages are left blank for purposes of interlining, additions, or changes in the Rules, or for any notes which the user of the book may wish to make. There is a complete index.

The pages are about 8 by 11 inches, and the book is bound with flexible cloth cover, so that it can be folded up and put into the pocket.

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THE AMALGAMATION IS ANNOUNCED of the engineering firms, Applebys, Ltd., and the Temperley Transporter Company. These firms are well known as manufacturers of cranes and transporting machinery of every description, specializing in shipyard, dock and harbor equipments, steel works, coal handling and contractors' plant. The amalgamated firms will trade under the title of Applebys, Ltd., with offices at 58 Victoria street, Westminster, and works at Glasgow and Leicester.

THE PATENT PROTECTIVE LUBRICATING BOX for propeller shafts, manufactured by F. R. Cedervall & Söner, Gothenburg, Sweden, has been sanctioned by the Board of Trade, by Lloyds, Bureau Veritas and Norwegian Veritas, and applied to numerous steamers classed in their books. This patent has been applied to ships of war in several navies and fitted to numerous steamers in the Atlantic Ocean, Baltic, North, Caspian and Black Seas. Among the advantages claimed for the invention are the following: "Increases the number of revolutions of engines; enables tail-end shaft to be efficiently lubricated by oil; prevents sea water and grit from entering the stern tube; costly brass liners on shaft and lignum vitæ bearings are dispensed with; galvanic action practically eliminated; maximum safety against breakdowns to propeller shafts."

IMPROVED PATENT OIL CABINETS FOR SHIPS' USE.—The manufacturer of these cabinets, the Valor Company, Ltd., Rocky Lane, Aston Cross, Birmingham, states that this is the only perfect system for keeping all kinds of oil on ships for daily use. The cabinet is made of terne coated steel with galvanized iron bottom, and is of the best finish and workmanship throughout. Being enamelled bright red, it is attractive in appearance and is unaffected by weather or oil. It shuts up and is dust proof and air tight. The pump is made of polished brass, simple in construction and cannot get out of order. It is screwed into place and may readily be taken out for filling the cabinet from a barrel. Its action is so easy that it can be worked with one finger. The oil will fill a 1-gallon measure in twelve seconds, and may be obtained without stooping down.

A MOTOR BOAT TO THE RESCUE.—A most lamentable accident took place recently at Burra Island, Shetland, when a small boat carrying seven fishermen was crossing from Scalloway. There was a strong sou'wester blowing and the boat was soon in difficulties, and eventually capsized about 100 yards off Boronaness. The sea and wind were getting worse, and medical aid was necessary for one of the survivors picked up by the *Qui Vive*, another Scalloway boat, summoned by telegram. Dr. Prested started off on Mr. Garriock's motor boat. The sea was, however, so heavy that off Turgar Point the ignition was swamped, and she had to run into Coldhame Bay. Here, however, the steel-built Ailsa Craig motor boat *Barney*, belonging to Mr. Andrew Smith, came to the rescue, and soon both motor boats were away at top speed for the scene of the accident, conveying the urgently needed medical help and proving themselves eminently useful. *Barney* is a seagoing cruiser doing a 10-knot speed with her Ailsa Craig engine, manufactured by the Ailsa Craig Motor Company, of Chiswick, London, and was built by the John Duthie Torry Shipbuilding Company, of Aberdeen. She will live in the wildest weather and seems unsinkable.

TRIAL TRIP OF STEAMSHIP MARS.—Oct. 9, the steel screw steamer *Mars* proceeded on her official trial trip off Hartlepool. She has been built to the order of Messrs. Harris & Dixon, Ltd., London, by Messrs. Furness, Withy & Company, Ltd., Hartlepool. The vessel exceeds 360 feet in length, has large measurement capacity and classed 100 A-1 at Lloyds. She is built on the deep frame principle with single deck, poop, bridge and forecastle, clear holds for the stowage of bulky cargo, the hatches being large and worked by six powerful steam winches, double derricks being fitted to each hatch. Cellular double bottom extends all fore and aft, the fore and after peaks are also available as water ballast tanks. Wood shifting boards are fitted throughout, and a direct steam patent windlass, large multi-tubular donkey boiler, steam and hand steering gear, fresh water condenser and all the most up-to-date auxiliaries are included in the vessel's outfit. Accommodation for the captain and officers is provided in large deckhouses on the bridge deck, the crew being berthed in the forecastle. She is rigged as a two-masted fore and aft schooner. The machinery and boilers have been supplied and fitted by Messrs. Richardson, Westgarth & Company, Ltd., Hartlepool, and worked most efficiently throughout the trial. The sizes of cylinders are 24-inch, 39-inch, 66-inch by 45-inch stroke, steam being supplied by two single-ended boilers, 16 feet by 10 feet 6 inches long, working pressure 180 pounds per square inch. The owners were represented by Mr. H. W. Rogers (London), the shipbuilders by Mr. F. Bolton, and the engineers by Mr. G. Urquhart.

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MOTOR LAUNCHES FOR THE KING OF SPAIN and the Spanish navy. Messrs. John I. Thornycroft & Company, Ltd., Church Wharf, Chiswick, London, W., are building two motor boats for the King of Spain. One for the King's personal use and the other for his staff. They are to be 28 feet in length with a beam of 7 feet and an extreme draft of 3 feet. The speed will be 9 to 10 knots; the power in each case being 28 B. H. P. Thornycroft motors driving twin Thornycroft propellers. There will be a portable cabin amidships with a short deck fore and aft, a canvas over well and two folding canvas hoods. The cabin of his majesty's launch will be enamelled white inside, relieved with gold, and the remainder of the decorations will be in keeping. The motors will be of the new Thornycroft L-4 type, which have four cylinders each with a bore of 4½ inches and a stroke of 5 inches, and develop 28 B. H. P. at about 900 revolutions per minute on petrol. In addition to the above launches, Messrs. Thornycroft & Company have received an order for two 36-foot motor boats for the Spanish cruiser *Cataluna.*

TRIAL TRIP OF STEAMSHIP CALCUTTA.—On Nov. 1 the steamship Calcutta proceeded on her official trial trip, after adjusting compasses, in Hartlepool Bay. The vessel, which exceeds 360 feet in length, is owned by Messrs. Nelson, Donkin & Company, London, and has been built to Lloyds 100 A-1 class by Messrs. Furness, Withy & Company, Ltd., Hartlepool. She has large measurement capacity and is built on the deep frame principle, with single deck, poop, bridge and forecastle, having clear holds for the stowage of bulky cargo, large hatches, worked by six powerful steam winches, with double derricks to each hatch. Cellular double bottom extends all fore and aft, and the fore and after peaks are available for further water ballast. Wood shifting boards through are fitted and a direct steam patent windlass, multi-tubular donkey boiler, steam and hand steering gear. Fresh water condenser and all up-to-date auxiliaries are included in the vessel's equipment. The captain's and officers' accommodation is provided in large deckhouses on the bridge deck, and the crew are berthed in the forecastle. She is rigged as a two-masted fore and aft schooner. The engines and all auxilary machinery worked most efficiently throughout the trial. The main engines and boilers have been supplied and fitted by Messrs. Richardsons, Westgarth & Company, Ltd., Hartlepool, the sizes of the cylinders being 24-inch, 39-inch, 66-inch by 45-inch stroke, steam being generated in two single-ended boilers, 16 feet by 10 feet 6 inches long, working at a pressure of 180 pounds per square inch.

"ROSS'S COMPOSITIONS" is the title of a 32-page booklet published by Arthur Ross, 1 Glengall Road, Old Kent Road, London, S. E. "Ross's compositions for the prevention of the formation of scale in steam boilers, have now been supplied continuously for upwards of forty years. During that period vast strides have been made in boiler construction, and the working conditions of the present time are very different from what they were when my compositions were first introduced. The success, which from the first introduction has attended my methods, is fully maintained, and I am still able to successfully cope with the difficulties due to the formation of scale in each and every type of steam boiler. The secret of this success is to be found in the careful personal attention I give to each case, the labor to discover the cause of the trouble, and the providing of a scientific method of overcoming that trouble. While laying no claim to infallibility, I may confidently claim that where my advice and instructions have been carried out, I have hardly ever experienced a failure. I work upon exact and scientific lines, and no effort or cost is spared in the endeavor to obtain the best results. A fully equipped laboratory is maintained replete with the best apparatus for conducting the most searching analyses of feed waters, scale deposits, cylinder oils, etc. The compositions supplied are in every case specially manufactured to meet the requirements of each user, as revealed by the analysis previously made. My experience is world-wide—a life's study has been given to this special subject, in which I may fairly claim to be an expert. This knowledge and experience is willingly placed at the disposal of my customers free of charge. It is a source of personal pleasure to me to be able to obtain a first-class result, and I am proud to be able to point to so great a number. Among my customers are to be found some of the largest steam users in the world; their orders have been retained for periods of ten and twenty, and in many cases for upwards of forty years. These facts should give you confidence in placing your business in my hands, and it is hardly necessary for me to assure you that my personal attention, and the wide knowledge and experience gained by the constant grappling with these difficulties are at your disposal."

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A GOOD EXPORT TRADE.—J. W. Brooke & Company, Ltd., Lowestoft, report that during the past few weeks they have shipped to foreign countries throughout the world, including the Argentine Republic, Siam and India, nineteen motors and three complete boats. The company reports that orders are still brisk, and that they now have in hand orders for motors for the Straits Settlements, China and other foreign countries, besides their large and increasing domestic trade.

TRIAL TRIP OF THE "CELEBES."—September 25, the large Dutch steamer *Celebes*, which has been built to the order of Messrs. The Stoomvaart Maatschappij "Netherland," of Amsterdam, by Messrs. Furness, Withy & Company, Ltd., West Hartlepool, proceeded on her official trial trip from the Tyne. The vessel exceeds 407 feet in length, and has a measurement capacity of 11,725 tons, built to highest class in Bureau Veritas. She is of the three-deck type with two steel decks laid, shelter deck erections sheathed with teak all fore and aft, and a long boat deck above also built of teak. A cellular double bottom is fitted throughout for water ballast, the fore and after peaks being also available as tanks. Six water-tight bulkheads divide the vessel into seven water-tight compartments. Special attention has been given to all discharging gear, the ship being equipped with twin masts, four derrick posts (the latter arranged as ventilators), twelve derricks and twelve powerful steam winches. These, together with six large hatchways, greatly facilitate the quick discharging of cargo. One 20-ton derrick is fitted to deal with heavy weights. The equipment also includes large multi-tubular donkey boiler, direct steam windlass, patent telemotor gear, electric light installation by Furness, Withy & Company, Ltd., patent fire extinguishing apparatus. Accommodation is provided for captain and officers in a large steel deckhouse amidships, and the crew are berthed in the forecastle. Hospitals and galleys, etc., for natives are arranged on the shelter deck aft. Awnings are arranged all fore and aft. The machinery worked most efficiently throughout the trial, and has been supplied and fitted by Messrs. Richardson, Westgarth & Company, Ltd., Hartlepool, the sizes of cylinders being 26½-inch, 43, 72-inch x 48-inch stroke, steam being supplied by three single-ended boilers 11 feet 3 inches by 14 feet, having a working pressure of 180 pounds. Messrs. Jonckheer, J. de Bruyn Kops and Burger represented the company, and Messrs. H. Withy, G. W. Sivewright and L. D. Wingate represented the builders. The vessel attained a speed of 13 knots.

LAUNCH OF STEAMSHIP WESTERWOLD.—On Oct. 22, Messrs. Furness, Withy & Company, Ltd., Hartlepool, launched the first of three large passenger steamers for the Hamburg-American line, over 366 feet in length, and built to Germanischer Lloyd and See Berufs Genossenschaft Rules. These vessels are intended for the West India trade, and will be rigged as two-masted fore and aft schooners, built on the deep frame principle with two complete steel decks and long bridge, poop and forecastle and long-boat deck fitted amidships; all weather decks are sheathed with teak. The hull is divided into ten water-tight compartments, by means of nine water-tight bulkheads fitted in accordance with German Board of Trade requirements for ocean passenger steamers. Cellular double bottom extends the full length of holds and engine and boiler space for water ballast, the fore and after peaks being also available as trimming tanks. There are five large cargo hatches worked by eleven powerful steam winches, the latter being supplied and fitted by Messrs. Furness, Withy & Company, Ltd.; seventeen derricks, two of which are capable of lifting 15 tons each. The vessels will be lighted throughout by electricity, and the installation, consisting of two dynamos, will be supplied by the shipbuilders. The equipment also includes direct steam patent windlass, patent telemotor gear, steam heaters, winch condenser, steam ash hoist, See's ash ejector, fresh water condenser, eight boats with davits of Mannessmann tube, awnings all fore and aft. The 'tween decks are arranged to carry 608 third-class passengers, and are fitted with Hoskins patent Neptune berths; thirty first-class passengers are accommodated in the bridge, and a fine dining saloon, smoking room and ladies' saloon are arranged on the bridge deck; the poop i sfitted up as a hospital. The crew are berthed in the forecastle, while the captain and officers are berthed in a large deckhouse on the boat deck. Engineers' berths, stewards, Butchers' shop, bakers' shop, galley, first-class lavatories, etc., are all arranged in the bridge deck. Insulated store rooms are fitted up in the after-hold and 'tween decks, and a refrigerating plant will be supplied by Messrs. J. & E. Hall. Triple expansion engines will be supplied and fitted by Messrs. Richardsons, Westgarth & Company, Ltd., Hartlepool, the diameter of cylinders being 25½-inch, 43-inch, 72-inch by 48-inch stroke of piston, and steam will be supplied from three single-ended boilers, 14 feet by 12 feet, working at a pressure of 200 pounds per square inch; Howden's system of forced draught will be fitted in connection with the boilers.

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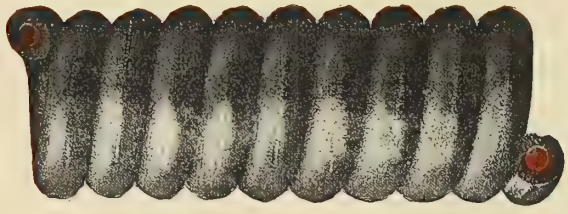

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Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—Railroad Way & Occidental Ave.
Philadelphia, Pa.—220 South Fifth St.
Louisville, Ky.—111-121 West Main St.
Indianapolis, Ind.—16-18 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1621-1639 17th St.

FOREIGN DEPOTS

Johannesburg, South Africa—2427 Mercantile Building.

Vancouver, B. C.—Carral & Alexander Sts.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St
Buffalo, N. Y.—379 Washington St
Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.

Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

A handsome desk calendar will be sent free of charge to any of our readers who apply to the Delaware Marine Supply Manufacturing Company, Wilmington, Del. There is a sheet for each month of the year, and there are several small cards referring to the different specialties manufactured by this company. The whole is mounted in a very handsome frame of white metal.

India oil stones, manufactured by Norton Company, Worcester, Mass., are described as follows in a circular the company is distributing: "Up to the time of the introduction of the India oil stones, the idea prevailed that artificially made sharpening stones could not replace those produced from the natural rock. The fallacy of this has been positively proven by the rapid and complete success of the India oil stones. They were placed upon the market in the year 1897, since which time their merits have been rapidly recognized and their uses have widely increased, so that they are now demanded for all kinds of sharpening work in every part of the world. Their uniformity in grit and grade had much to do with their immediate popularity, but probably the greatest factor in bringing them to universal use was the fact that they could be produced with accuracy in any degree of coarseness or hardness to suit the particular work for which they are intended. In addition to sharpening ordinary tools, such as chisels, plane irons, etc., they can be adapted to the sharpening of the finest and most delicate tools and instruments. The thirty-four shapes in which they are regularly made and stocked practically cover all the ordinary demands of the general trade, but when anything in special size, shape, grit or grade is called for, it can be made to order and delivered in reasonable time. The materials of which they are composed are very carefully selected and prepared, and have peculiar qualities, which make the stones especially fitted for sharpening, *i. e.,* quick, cool cutting, combined with great durability. The seams and uneven spots with which it is necessary to contend in the natural product, do not occur in these stones. There are three regular grits, *i. e.,* coarse, medium and fine, and thirty-four regular shapes, also several special shapes. Combination stones are produced fine on one side and coarse on the other, the advantages of which are evident."

The Collins pressure regulating valve for steam, made by the Ohio Brass Company, Mansfield, Ohio, is described and illustrated in a catalogue distributed by the company. This valve is stated to reduce the boiler pressure to any pressure required, and that it maintains a uniform service pressure regardless of variation in the initial pressure. The body and main controlling valves are made of government standard composition as used by the United States Navy.

Engineering marine specialties and supplies are described and illustrated in a catalogue published by the Griscom-Spencer Company, 90 West street, New York City. "We call your attention to our extended facilities for the manufacture of all classes of engineering specialties, building of small vessels, all kinds of copper work and engineers' supplies, electrical equipments, and for the supply of tools and machinery. In addition, we would point out the convenience of our water front at Jersey City, close to the Pennsylvania Railroad and alongside of four New York ferry slips, for repairs to steamships, yachts, tugs and general marine work. Wharf and railroad tracks on the premises. We are at all times in a position to undertake engine and boiler repairing; the renovating of cabins and all manner of ship carpentry, refitting of hulls, rigging and decks, and appliances for handling cargo, etc., at short notice. Our shop room is ample for any emergency, and our skilled force and modern facilities are sufficient to turn out work with the quickest possible despatch. We have had long experience and are thoroughly conversant with all classes of shore and marine repairing, and keep in stock all supplies necessary for any description of repair work we might be called upon to do at short notice. The West street shops were established in 1867, and for nearly twenty-five years did practically all the repair work of the International Navigation Company (American and Red Star lines) and many other foreign, coastwise and river steamship and steamboat lines. Operating as we do all of the branches requisite for a complete repair works, and the manufacture of engineering specialties and uniting therewith the best stocked supply house in New York, we possess advantages above the average establishment of its kind, and can offer facilities to our patrons rarely found in one establishment."

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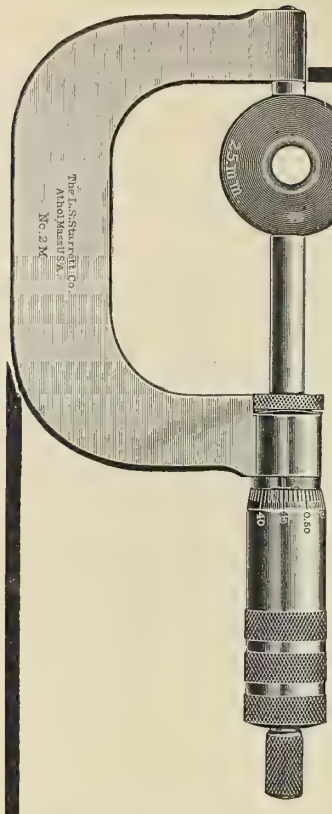
Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Carey's coverings are the subject of an illustrated catalogue of 70 pages published by the Philip Carey Company, Lockland, Ohio. The statement is made that they "are absolutely fireproof and thorough non-conductors of heat. Confine the heat to the pipes, and prevent its loss through radiation. Prevent the condensation of steam, obviate the necessity of excessive firing, and reduce to a minimum the amount of fuel necessary to operate the plant. Save enough fuel within six or eight months to more than repay their original cost. Outlast the surfaces to which they are applied, and the continued saving becomes an annual dividend of at least 100 percent upon their original cost. Are in many respects superior, and in all essential features equal, to the best on the market. Are the cheapest, considering their efficiency and the satisfactory and remunerative results obtained by their use. Are in use and recommended by thousands of prominent steam users throughout the country. See testimonials."

"Hancock Valves" is the title of a pamphlet published by the Hancock Inspirator Company, 85 Liberty street, New York City. The introduction states: "We present for your careful consideration the Hancock, globe, angle, 60-degree and cross valves. These valves have been made by us for a number of years, but this book is the first catalogue in which full descriptions and price lists of all the styles and sizes of valves are given. These valves are designed and made to meet the demand of steam and mechanical engineers for high grade valves adapted to the highest steam pressures and made of the best material known for this purpose, and are all made of uniform grade, whether for the lowest steam pressure or for the highest, and experience with these valves on boilers carrying high pressures has proved them to be reliable and to keep tight longer than any valve that we know of. To produce such a valve involves high-cost material and consequent high cost of labor, and it is not expected to compete in price with the ordinary globe and angle valves of commerce. All valves are tested and are guaranteed tight under a hydraulic pressure of 1,000 pounds, and are capable of standing an ultimate stress of 4,000 pounds without distortion, which when placed under a steam pressure of 500 pounds, would have a large factor of safety."



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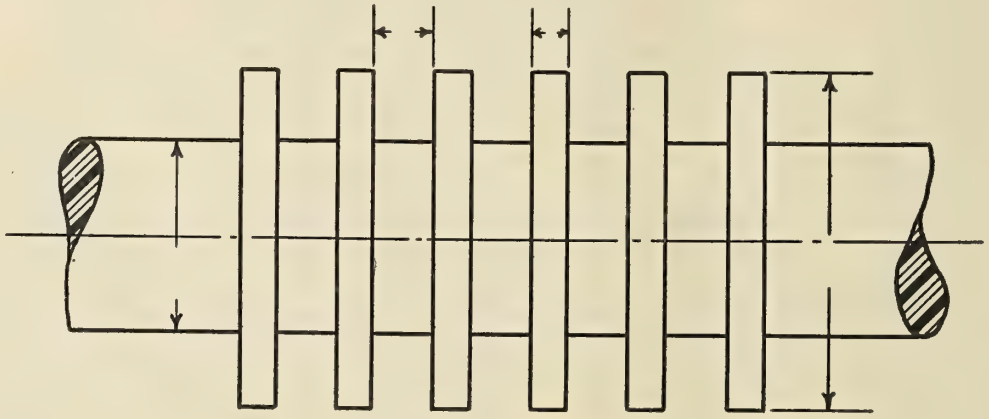

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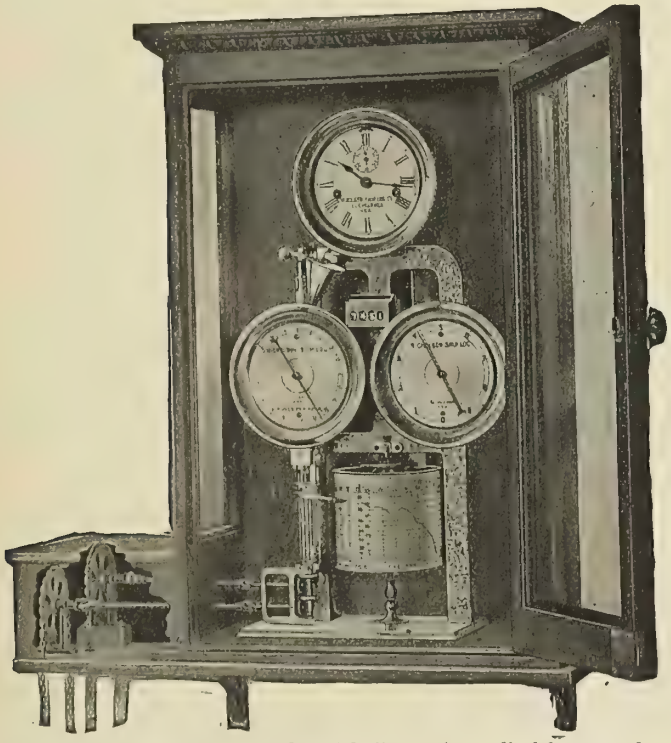

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Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

A catalogue of steam, ammonia and hydraulic packings is published by the Crandall Packing Company, Palmyra, N. Y. This is a handsomely printed and illustrated booklet of 80 pages, and should be in the hands of every user of packing of any kind. A free copy will be sent upon application to readers of INTERNATIONAL MARINE ENGINEERING.

Those interested in the "paint question" should write to the New Jersey Zinc Company, 71 Broadway, New York City, and ask for the following pamphlets, which will be sent free to those mentioning INTERNATIONAL MARINE ENGINEERING: "The Paint Question," "Paint; How, Why and When," "Paints in Architecture," "Specifications for Architects" and "French Government Decrees."

Ship and yacht builders and owners and naval architects interested in marine sanitary plumbing should be sure to send to A. B. Sands & Son Company, 22 Vesey street, New York City, for this company's handsomely illustrated catalogue of everything that pertains to marine sanitary goods of any nature.

A free copy of the catalogue of drawing materials and surveying instruments published by Kolesch & Company, 138 Fulton street, New York City, will be sent to any reader mentioning this magazine. This is a very complete volume of 250 pages, and should be in the hands of every user of such materials and instruments.

Manganese bronze is described in a booklet issued by the Ajax Metal Company, Philadelphia, Pa. Manganese bronze is stated by the manufacturer to be the strongest bronze on the market. It has been used for a great many years by the United States and foreign governments in such castings as propeller wheels, gear wheels and parts of construction which are subjected to great strains. In the past the metal has been used more particularly for special requirements, but is now used as an alloy for many uses, its high tensile strength combined with great toughness recommending it for numerous castings.

Machine tools are the subject of catalogue No. 45 issued by the Newton Machine Tool Works, Twenty-fourth and Vine streets, Philadelphia, Pa. This is a handsomely illustrated cloth-bound volume of 304 pages. In issuing this new general catalogue it is the company's purpose to illustrate and briefly describe its entire line of machine tools, calling attention to the fact that many of the machines illustrated are at the present time being redesigned, and that the entire line is constantly being improved. Among the tools described and illustrated are boring machines, cold saw cutting-off machines, drilling machines, gear cutting machines, milling machines, rotary planing machines, slotting machines and miscellaneous tools.

The Paragon reverse gear is described and illustrated in a booklet issued by the Evans Stamping & Plating Company, Taunton, Mass. "It has long been admitted by marine motor manufacturers, and now the motor boating public is beginning to realize that some form of a reversing gear is the only practicable mechanism for obtaining the reverse motion in boats powered by explosive engines. This fact admitted give your attention to a few of the more prominent superiorities of the Paragon reverse gear. First, it is most compact. Second, the materials used are of the best. The pinions and engine gear are made of special gear steel, the castings are of the best gray iron and crucible steel, while the pinions and cover are bushed with the best of hard bronze. Third, all parts are made to gage, and all holes drilled from jigs, which insures uniformity and makes all parts interchangeable. All gears are planed, making an absolutely perfect tooth in every particular, which insures a quiet running gear. The case is absolutely oil tight, which does away with the objectionable flying oil. Fourth, it is so constructed that it will not stall your motor no matter how quickly you reverse. Fifth, the gears are always in mesh, but in operation only when reversing or running idle. Sixth, the propeller gear revolving through the full circumference of the case insures perfect lubrication, as it picks up the oil and distributes it to the pinions at all times while reversing. Seventh, the operating lever has a movement of but 6 inches, which allows of a lever in the pilot house. The leverage is such that this gear is engaged or released with very little exertion. Eighth, the propeller gear, engine gear and thrust bearing are bored to fit your propeller and engine shafts. No couplings being required. Ninth, the only attention that this gear needs is that it have sufficient lubrication at all times. Tenth, there is but one adjustment, that of the friction by means of a screw collar, which is easy of access. Eleventh, it is easily installed, no cutting or fitting being necessary."

TRADE PUBLICATIONS

GREAT BRITAIN

Archer's new patent combined steam and hand-steering gear is the subject of illustrated folders published by Dunston Engine Works Company, Dunston-on-Tyne. The statement is made that "Archer's new patent combined steam and hand-steering gear can be worked either by steam or hand, at engine or from bridge. The above-named gear is the result of utilizing Archer's well-known patent (self-holding) hand-steering gear in combination with a steam engine. By means of clutches the gear can be worked either by hand or by steam. The engine is worked by the small hand wheel, and stops automatically the instant the hand wheel is stopped, being more than usually quick in action. The gear is exceedingly simple, being free from the multiplication of working parts common to most gears. The hand gear (Archer's patent self-holding steering gear) the principal feature of which is the patent cycloidal wheel gearing, takes the place of the usual worm wheels in other gears. Compared with other steam steering gears using worm and wheel gearing, this gear has greater efficiency, which means that the same results are obtained by using a smaller engine. All the working parts, except engine, are contained and carried on one shaft, which makes the gear more compact and simple in construction than any other steam steering gear. The gear is less weight on account of having less working parts. Instant action in response to the steersman. High efficiency with the minimum cost of repairs."

"Users of United States Metallic Packing" is the title of a 170-page booklet published by the United States Metallic Packing Company, Ltd., Soho Works, Thornton Road, Bradford. "This packing consists of eight blocks, which are held in strong rings having pockets or horns holding springs. The packing blocks are put together in sections, four blocks to a section. Each section is therefore composed of two working blocks, babbitt lined, and two guide blocks. The joints between the blocks in one section are at right angles to those in the other section, thus breaking joint. The blocks are regulated by springs, which merely keep the parts in place when the steam is shut off, as, when steam is applied, the steam pressure regulates and sets the packing. A ball joint on one side, and follower with springs on the other, give the packing free play, and keep it steam tight without regard to the vibration of the rod. It works equally well whether the rod vibrates or not, and causing no friction it does not wear the rod but gives it a high polish. With efficient lubrication the blocks wear very slowly. Many of our packings having given over twenty-seven years' service without renewal of the blocks, which are the only parts of the packing liable to wear. The whole is enclosed in a strong case, and bolted to the cylinder head with the usual stud bolts. In the construction of this packing particular attention is paid to the reduction of clearance space, no empty space being permitted beyond what is necessary to allow for the vibration of the rod. The packing case is also made as thick as possible to prevent condensation. Where possible the packings are fitted with drain valves to permit the removal of water, core sand, or other accumulations. The improvements recently added remove all shearing strain from springs, thus preventing the possibility of any annoyance from breakages. Special attention has also been given to the use of our packing in conjunction with superheated steam, and we can guarantee its perfect working at a temperature of 700 degrees F."

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Standard motors and dynamos are described and illustrated in a very complete catalogue published by Electromotors, Ltd., Openshaw, Manchester. These motors are stated to be highly finished to the smallest degree. The company's machines bear the stamp of these characteristics to a degree only found in the manufactures of specialists, while fully maintaining the company's reputation for good workmanship. They have spared no pains to improve the design in any particular directed by experience.

Kramos, Ltd., Bath, Locksbrook Engineering Works, manufacturers and patentees of portable electric tools and electric hoisting machinery, are distributing lists illustrating and describing their electric hoisting machinery. These lists state that it is a common error to suppose that worm gearing can be made efficient when used on small hoists; that with worm gearing the whole reduction from the high-speed motor to the low-speed rope drum is effected by one small single gear, so that the whole of the power is transmitted through a very small tooth-bearing surface, producing enormous friction and causing this type of gear to wear away quickly. This friction is said also to produce serious waste of electricity. With worm gear hoists no brake is necessary, as the worm and wheel lock themselves. The gear, therefore, according to Kramos, Ltd., should be spur gear throughout, the wheels machine-cut from steel blanks.

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RELIABLE—SATISFACTORY—EFFICIENT
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BUSINESS NOTES

AMERICA

The main air pumps, main and auxiliary feed pumps and sanitary pumps for the mine-laying steamer *Captain A. M. Wetherill,* described at page 502 of our December number, were supplied by M. T. Davidson Company, 154 Nassau street, New York. Similar equipments are being furnished by the same manufacturers for three duplicate boats built at the yard of Pusey & Jones, Wilmington, Del.

"The City of Chicago has gone into the boat building business. Incidentally, when it finishes the craft on which it is now engaged, it will give thousands of persons a day an opportunity of obtaining a free boat ride. At Eighteenth street and the river a ferryboat is nearing completion for use at Polk street while a new bridge is being constructed. Persons who cross the Chicago river at Polk street have demanded that a temporary bridge be constructed, but as this would be needed for only about four months, and would cost $5,000, Bridge Engineer Pihlfeldt submitted plans for a ferry to the comsioner of public works, who approved them. The ferry will be operated by an 18-horsepower motor and will carry 100 persons. It will cost $1,500, and will be available in a breakdown at any bridge." The motor referred to is an "Anderson" three-cylinder, 5 by 6 gasoline engine, made by Anderson Engine Company, Shelbyville, Ill.

The Power Specialty Company, 111 Broadway, New York, manufacturers of the Foster patent steam superheater, reports a very gratifying increase in the volume of business secured for 1907, as compared with any previous year. The past ninety days has witnessed some falling off in orders but renewed inquiries within the past few weeks, and resumption of negotiations temporarily deferred by reason of recent financial conditions, indicate that a large number of contracts will be closed soon after the first of the year. Among recent orders for Foster superheaters for installation in practically all types of boilers the following are mentioned: Bernheimer & Schwartz Brewing Company, 2,000 horsepower in Heine boilers; Schlitz Brewing Company, 2,000 horsepower in Edgemoor boilers; Clark Thread Company, Newark, N. J., 2,500 horsepower in Stirling boilers; Megargee Paper Company, 750 horsepower in Continental boilers; Wisconsin Steel Company, 7,000 horsepower in Stirling boilers; Solvay Process Company, Detroit, Mich., 1,800 horsepower in B. & W.

Mr. H. N. Bennett is no longer in the employ of the Bird-Archer Company, 90 West street, New York City. Mr. Bennett has been succeeded by Mr. D. O'Connell as manager of the marine department, assisted by Mr. J. R. Gatchel and Mr. E. J. Du Bois.

Five trans-Atlantic steamers which entered the port of New York in the thick fog that prevailed Nov. 21 and 22 last, reported their experience with submarine signals. First Lieutenant Poumlot, of the French Line steamship *La Savoie,* ran into the fog Friday morning when coming on the coast. At 11 o'clock he began listening for the submarine bell on Nantucket Shoals lightship; heard it clearly four minutes later, 45 degrees to port; he shaped his course accordingly, and ran for Sandy Hook, which bell he picked up at a distance of 3 miles, and entered New York harbor. After a year's experience, Lieutenant Poumlot says that all vessels should be equipped to receive submarine signals in order to protect them from disaster. On the afternoon of the same day the Hamburg-American steamship *Patricia* got the Nantucket Shoals bell about 10 miles out, and was able to shape her course so as not to approach the light vessel nearer than 9 miles. The steamship *Moltke,* also of the Hamburg-American Line, leaving New York for Mediterranean ports, got Sandy Hook bell at a distance of 5 miles, and went on her eastward way. The White Star steamship *Baltic* heard the Fire Island bell when 11 miles distant, and two hours later picked up Sandy Hook at about the same distance. The Cunard steamship *Mauretania,* on her first trip, while feeling her way through the fog, heard the Sandy Hook bell at a distance of 12½ miles, and ran slowly up to the lightship. She heard the bell for an hour before she heard the whistle. Undoubtedly this vessel, with 9 tons of gold besides other cargo, represented the greatest marine risk that ever crossed the Atlantic. The sense of relief felt by a captain when he hears the sound of the submarine bell and is able to get direction exactly may be imagined. An air signal is uncertain; it is often absolutely misleading; it may be heard at 5 miles and lost at 2 miles; but such distances as the five steamships report on Friday last cannot possibly be equaled by the best air signals ever invented.

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BOSTON, MASS., 232 Summer Street
BALTIMORE, MD., 114 W. Baltimore Street
BUFFALO, N. Y., 600 Prudential Building
PITTSBURGH, PA., 913-915 Liberty Avenue
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

BUSINESS NOTES

GREAT BRITAIN

ORDER FOR FOUR OVERHEAD CRANES.—Messrs. Royce, Ltd., of Trafford Park, Manchester, have received from Messrs. Richardson & Cruddas, engineers, of Bombay, an order for four overhead electrically-driven cranes.

THE TENTH ANNUAL MEETING of shareholders of the Parsons Marine Steam Turbine Company, Ltd., held in Newcastle recently, celebrated the close of a decade in the history of the company by the declaration of the now usual dividend at the rate of 10 percent per annum and a bonus of 2½ percent. The profits for the year amounted to £51,074, and the directors' report and balance sheet bear ample testimony to the uniform increase year by year of the work done. It is, of course, a truism that the turbine has not yet got it all its own way—there are questions of coal consumption and economy still to be definitely determined; but, nevertheless, it has long ago passed its experimental stages, and its adoption is now general in certain classes of high-speed vessels. Turbines during the past financial year, for example, have been constructed at the Turbinia Works, Wallsend, for His Majesty's yacht *Alexandra* and for Japanese passenger vessels now being built at Nagasaki; while the licensees of the company to-day include, in addition to many British firms, American, Japanese, German, Italian and Russian shipbuilders. "The horsepower of the turbine engines constructed by the company since the last report is 79,600, and the horsepower of orders at present in hand is 27,800. The horsepower of turbine engines constructed by the company's licensees during the same period is 309,000, and the horsepower of orders at present in hand by the company's licensees is 463,800. The total since the commencement, including the turbine engines delivered and being constructed by licensees on the Continent, is 1,485,000 horsepower." Such in brief compass is the record of last year's work and also for the decade, and it must be gratifying alike to shareholders and all interested in the development of marine engineering.

THE "OTT" SILENT HEATER, manufactured by Benjamin Parker, Ltd., 121 Suffolk street, Birmingham, has been designed especially for baths on board ship. It is simple and neat in construction, easily taken apart for cleaning without disconnecting, and protrudes only a ½ inch into the bath. The "Ottir" circulating heater for heating water in circulating pipes either for warm or for hot water service, is said to be the best swimming bath heater on the market. The "Ottist" instantaneous water heater is said to be safe, automatic and economical, that it heats only the water drawn off, and that there is no waste of steam maintaining heat in the body of the water. It is impossible to turn steam to blow through "Ottist." There is no danger of scalding, and it can be set to deliver to any temperature. It will deliver boiling water without humming and will suit any pressure of steam or water.

THE OCEAN-GOING TORPEDO BOAT DESTROYER *Mohawk*, built by Messrs. J. Samuel White & Company, Ltd., East Cowes, Isle of Wight, for His Majesty's navy, ran an official trial on the Maplin Mile recently, obtaining a mean speed of 34.3 knots per hour. This is 1.3 knots in excess of the contract speed of 33 knots, which speed, considering the high basis speed, is a most remarkable result, the oil fuel consumption being very satisfactory. This vessel is one of the ocean-going destroyer class, and the following are the principal particulars of the ship: Length, 270 feet; displacement, 800 tons; armament, three 12-pounder quick firing guns, two 18-inch revolving torpedo tubes. The speed to be maintained on a six hours full power trial, 33 knots; radius of action at economical speed, 1,500 nautical miles. The vessel is propelled by turbine machinery, comprising five turbines (three ahead and two astern), driving three shafts and propellers, built by Messrs. J. S. White & Company, Ltd., under license from Messrs. The Parsons Marine Steam Turbine Company, Ltd., the power of the machinery being about 14,500 indicated horsepower. The steam is supplied by six water-tube boilers, each of about 2,400 horsepower of the White-Forster type, made by the same firm, these boilers being fired by liquid fuel on a system which has been experimented with successfully by the Admiralty for some years. No coal storage is provided in the vessel, and she will rely entirely on the liquid fuel installation.

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LONDON: CHARLES GRIFFIN & COMPANY, LTD., EXETER STREET, STRAND, W.C.

Launching of the Steamship *Spreewald*.—On Nov. 21, Messrs. Furness, Withy & Company, Ltd., Hartlepool, launched the second of three large passenger steamers which they have on order for the Hamburg American Line, the vessels being 366 feet long, and built to Germanischer Lloyd and See Berufs Genossenschaft rules for ocean-going passenger steamers. The vessels are intended for the West Indian trade, and will be rigged as two-masted fore and aft schooners, built on the deep-frame principle with two complete steel decks and long bridge poop and forecastle, with longboat deck amidships. All weather decks are sheathed with teak. The hull of the vessels is divided into ten watertight compartments by means of nine watertight bulkheads, fitted in accordance with German Board of Trade requirements for ocean passenger steamers. Cellular double bottom extends the full length of holds and boiler space for water ballast, the fore and after peaks being also available is trimming tanks. There are five large cargo hatches worked by eleven powerful winches, the latter being supplied and fitted by the builders, and seventeen derricks, two of which are capable of lifting 15 tons each; the derricks are made from patent Mannesmann tube. The vessels will be lighted throughout by electricity, and the installation, consisting of two fine dynamos, will be supplied by Messrs. Furness, Withy & Company, Ltd. The equipment also included direct steam patent windlass, patent telometer steering gear, steam heaters, winch condenser, steam ash hoist, See's ash ejector, fresh water condenser, eight boats, with davits of Mannesmann tubes, and awnings all fore and aft. 'Tween decks are arranged to carry 608 third-class passengers, and are fitted with Hoskins' patent Neptune berths, while thirty first-class passengers will be accommodated in the bridge. A fine dining saloon, smoking saloon and ladies' room are arranged on the bridge deck. The poop is fitted up as a hospital. The crew are berthed in the forecastle, while the captain and officers are berthed in large deckhouses on the boat deck; engineers' berths, stewardesses, stewards, butcher's shop, baker's shop, galley, first-class lavatories, etc., are arranged on the bridge deck. Insulated store rooms are fitted up in the after hold and 'tween decks, and refrigerating plant will be supplied in each case by Messrs. J. & E. Hall, Ltd. Triple expansion engines are being supplied and fitted by Messrs. Richardsons, Westgarth & Company, Ltd., Hartlepool, with cylinders 25½, 43, 72 by 48-inch stroke, steam being generated in three single-ended boilers 14 feet by 12 feet long, working at a pressure of 200 pounds per square inch. Howden's system of forced draft will be fitted in connection with the boilers. The vessels are being built under the personal supervision of Mr. Wilke and Mr. Hatje, on behalf of the company.

"Navigation by the lead" predominates in the ever increasing fleet of steam trawlers and herring drifters fishing round the western shores of Europe, and its value is being realized every day by the greater navigators who guide the vessels, great and small, comprising the mercantile fleet of the world. The introduction of the sounding machine with its fine wire line and automatic depth recorder, making it possible to take soundings at any speed and in definite directions, has very much helped to popularize the use of the lead. The chief hindrance to a still greater use of the sounding machine is the difficulty of handling a wire line coiled on a reel 10 or 12 inches in diameter, and running overboard at a speed of 300 yards a minute. So long as the reel revolves at the same speed as the wire all goes well; but when the sinker reaches the bottom and the speed of the wire is in consequence instantly checked, then difficulty arises. Unless the brake is applied at the same moment as the wire slackens, the reel overruns the wire, the wire becomes loose on the deck and round the drum of the machine, getting into kinks and knots, and all sorts of entanglements. Needless to say, once a kink becomes established in the wire the wire breaks sooner or later at the kink, the recorder and sinker are lost, and everybody concerned is discouraged. Of course these things do not usually happen when experience and care are present. But even experience and care may be found wanting when the weather is bad and th night dark. We believe the introduction of an automatic brake applied when the sinker reaches the bottom, will go far to overcome this difficulty and cause the sounding machine to be used whenever the information it can give will be of value. Messrs. Wilson & Gillie, nautical instrument makers, of North Shields, have several important patents for improvements in sounding machines, and we are informed have recently applied for a patent for a brake of this description.

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Electricity at Sea. The Largest Installation Afloat—Electricity is extensively employed throughout the new Cunard liner *Mauretania,* the installation being the largest afloat, and equal to some generating stations on land designed for supplying a city of 100,000 inhabitants. The steam power required would drive a 10,000-ton cargo steamer at a speed of 10 knots. The generating plant consists of four sets of Parsons turbo-generators, each capable of supplying 4,000 amps. at 110 volts when run at a speed of 1,200 revolutions per minute. When compared with other large steamers of recent construction, such as the *Cedric,* which had four generating sets, each supplying 600 amps. at 100 volts, it will be seen how extensively electricity has developed for lighting, heating, ventilation and auxiliary power on board Atlantic liners. For the transmission of the great power on the *Mauretania* there are nearly 100 tons of copper cables, which if stretched out in one length would measure about 250 miles. To meet the requirements of the Admiralty the cables had to be kept under the water-line, necessitating a passage through the boiler space, and to withstand the heat specially prepared cables with an outer covering of asbestos had to be made. These cables run along the ship's side on porcelain insulators, and are further protected by an iron channel. The main switchboard is of massive construction, in two sections, one in each engine room, and so arranged that should one compartment be flooded with water the lighting could be supplied throughout the ship from the other side. There is a main circuit breaker of 4,000 amps. for each generating set, and twelve circuit breakers of 1,000 amps. on each board. In addition to this there is a time limit regulator for each circuit, so that any sudden load thrown on by the starting of various motors will not open the circuit breakers under the time limit. Each generator panel is also provided with an ampere gage and voltmeter, and separate instruments are provided for taking the power of the various circuits and adjusting the voltage of the four generators. There are some 6,000 lamps of 16 candlepower distributed throughout the ship, of which 720 are fitted in the engine room and stokehold. In the lighting of the public rooms the fittings are of a very handsome design, specially prepared to harmonize with the character of the decorations. The general effect, with all the lights burning, is like fairyland, every part being brilliantly illuminated. In the state rooms handsome ceiling lamps are fitted, as well as portable reading lamps, electric radiators and connectors for curling tongs, heaters and electric fans. The navigation lights are fitted with Martin's patent duplex indicator on the navigation bridge. This apparatus registers any failure in any of these lights, at the same time automatically switching in a spare filament in the lanterns, and thus avoiding a total extinction. In no other vessel has electricity been so extensively introduced by heating and ventilating and driving auxiliary machinery. There are about 150 different motors, varying from 50 horsepower for forced draft fans to the tiniest ¼ horsepower for boot and knife cleaning machines, dish washers, potato peelers, etc. The most interesting of these are sixteen motors of 50 horsepower for the forced draft fans. Four large motors operate the opening and closing of the main steam sluice valves, other four are for turning the main shafts, and six others are for lifting the covers of the turbines. Two motors are connected to pumps in connection with condenser, four are fitted to the refrigerating machinery in the fore end of the vessel, while the passenger elevators and hoists for the mails, baggage and galley stores are all electrically driven. There are also four electric jib cranes for handling baggage, and four electric boat hoists. For the ventilation and heating of the ship there are no fewer than ninety motors, twenty-eight of which supply air to the engine room and stokeholds, while fifty-four motors are connected to the thermo-tanks, which supply hot or cold air to the passenger accommodation. There are three separate systems for telephone communication fitted on board the vessel. Graham's loud-speaking telephones connect the navigation bridge to the crow's nest on the foremast, the forecastle head and the three engine rooms, and also the steering gear and aft bridge. An intercommunication telephone system is fitted for the use of the officers and the engineers, and a telephone exchange for the first-class passengers, which can be connected to the shore immediately on the arrival of the vessel in port, A complete system of electric fire alarms is also fitted throughout the ship ,a red lamp indicating their position, with indicators in the engine room and on the navigating bridge. There are also about fifty clocks fitted throughout the ship, and these are all electrically controlled from the chart room. An installation of this magnitude required a firm of large experience in the lighting of ships, and Messrs. W. C. Martin & Company, of Glasgow, London and Newcastle, have carried out the work most successfully in every detail.

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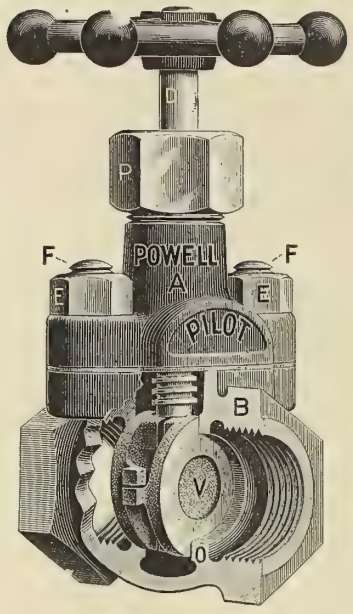

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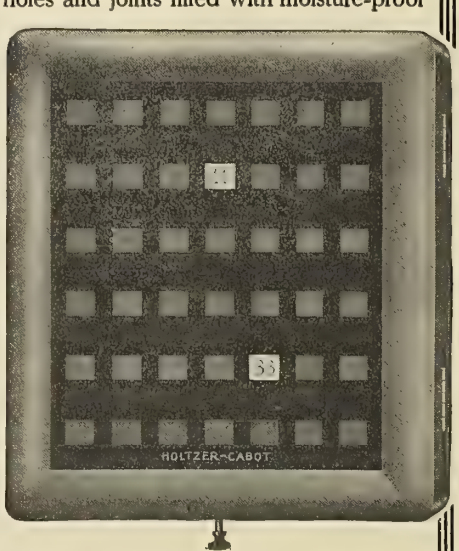

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For Sale.—New patent (1906) for improved pincers; absolutely novel and useful tool for drawing rusty nails and the like. Boughton & Company, 276 High Holborn, London, W. C.

THE PATENT Q. E. D. COURSE CORRECTOR made by Wilson & Gillie, the New Quay, North Shields, which has been described in connection with the standard compass, may be had separately and may be fitted to any binnacle top. It may also be fitted by means of a bracket to a steamer's bridge rail or any other suitable position, in the manner indicated in the sketch. As there is no calculation required, it may be used in taking bearings by the stars at night, with as little trouble as taking the sun by day time. All the necessary tables being contained in Burdwood's or Davis' Azimuth Tables. Several hundreds of this instrument are now in use.

IN THE NEW PATTERN "CHERUB" LOG, made by Thomas Walker & Son, Ltd., Birmingham, the firm aimed to produce an instrument that will work with greater accuracy and regularity at varying speeds than the old pattern. "The good features of the original, which have been proved by long use, have been retained and improvements introduced which experience has shown to be advisable. The most important changes are the use of ball-bearings instead of conical rollers, and the introduction of a sliding case to allow of the movement being oiled while the log is at work. The register has also been balanced and the internal friction reduced by the absence of the bell work. Before placing the log on the market it has been tested by a number of captains, who have unanimously reported that they consider it a steady, reliable instrument and an improvement upon the old pattern. Considering the great success of our 'Cherub' log we think this high praise. The ordinary 'Cherub' rotators are supplied with the log. The log complete consists of register, two rotators and shells, two shoes, one hook and three glasses. It may be obtained from all the leading opticians and ship chandlers."

"SPECIALTIES IN NAVIGATIONAL INSTRUMENTS" is the title of a catalogue published by Wilson & Gillie, New Quay, North Shields, England. Regarding this company's patent combined standard compass and course corrector the statement is made that "the card is of the ring type, now most approved as combining the best disposition of weight with the most approved form for accurate reading. The frame is made of aluminium, and the eight short needles are arranged in such a manner as to give a maximum directive force combined with a minimum of weight. The center is made of iridium. The compass bowl is suspended by means of short chains and springs, in the way now generally accepted as the most suitable for absorbing any vibration, and preventing the card being disturbed by the racing of the propeller with a ship in ballast. On top of the binnacle is fitted the patent Q. E. D. course corrector—which has been awarded two prize medals—and is generally acknowledged to be the simplest and most compact course corrector at present in the market. It has been adopted by the Norwegian Veritas as one of three instruments considered specially suitable for ascertaining deviations. It may be used for ascertaining the compass error from bearings of the sun, moon, stars or landmarks, and gives both true and magnetic courses at a glance. For taking a four-point bearing it is exceptionally handy. It is also especially adapted for vessels crossing the equator, the dial being divided so that it may be used for either north or south latitudes, by simply reversing the dial, so avoiding the confusion sometimes caused by course correctors divided on one side only. Horizontal angles for use with a station pointer may also be measured most expeditiously by its means. When not in use the course corrector is removed from its place on the binnacle and placed in a bracket, which is supplied with it, and which is easily fixed in any convenient position in the chart room. The binnacle stand is made of teakwood and strongly bolted to the deck. The magnets are placed in receptacles fixed inside the stand, and the door thereto being locked prevents unauthorized persons tampering with them. There is also a receptacle for a vertical magnet to compensate heeling error. A Flinders bar on the fore side of the stand, to compensate vertical induced magnetism, and movable globes on brackets, for correcting the quadrantal deviation, are supplied when required. The binnacle lamps are large and well made, and a brass shade is fitted to the glass front to prevent the glare from the lamps at night."

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TRADE PUBLICATIONS.

AMERICA

"The Use and Abuse of Stay-Bolts" is the title of a paper written by Mr. John Hickey, of Salt Lake City, free copies of which may be obtained from the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, by readers who will mention this magazine. Those interested in the subject should be sure to send for a copy of the paper.

Steam pumps, pumping engines, condensers, evaporating and distilling apparatus, ash ejectors, etc., are described and illustrated in a 96-page catalogue published by M. T. Davidson Company, 154 Nassau street, New York City. Regarding the company's evaporators and fresh water distilling apparatus the statement is made: "In addition to other uses, evaporators have become an important part of the equipment of steam vessels plying in salt waters. They are used for supplying the deficiency in feed water returned from the condenser, due to usual losses; also in connection with distillers or condensers for making water for drinking, culinary purposes, etc. On vessels making long voyages an evaporator is practically indispensable, and even when the trip is of such duration that the supply may be replenished at different ports, the fact that all fresh water is not desirable for boilers, makes the use of an evaporator advisable in order to maintain the full efficiency of boilers, prevent the formation of scale and the serious damage resulting therefrom. The waste of feed water by overflow, blowing of whistles, leaks in boilers, condensers, stuffing-boxes, pipe joints and valves, varies greatly; it is more nearly in proportion to the quantity of feed water used than to the horsepower. Usually a vessel fitted with engines which give a horsepower on (say) 16 pounds feed water will waste less water per horsepower than a vessel with engines requiring 40 pounds of feed water per horsepower. Experience shows that this loss will be about 2 per cent of the feed water, and the average consumption of water per capita for drinking, cooking and all ordinary purposes, except bathing, is about 2½ gallons per day. The distilling apparatus is always made large enough to supply much more than the amount of water required to allow for accidents, and also that the full supply may be obtained by running the apparatus a portion of the day."

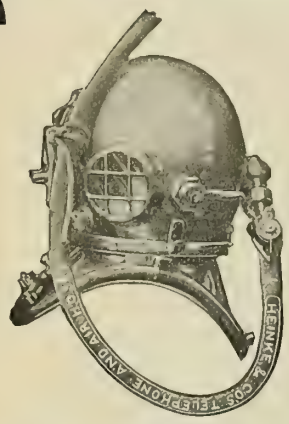
Greenfield flexible steel conduit and flexible steel-armored conductors are described and illustrated in a catalogue published by the Sprague Electric Company, 527 West Thirty-fourth street, New York City.

The company's monthly stock list of boilers, engines, dynamos, motors and machinery will be sent free to all readers who will mention this magazine by Wickes Bros., Saginaw, Mich.

Coal handling machinery for coaling stations, shipyards, boiler rooms, etc., is the subject of a very complete 64-page catalogue, No. 072, issued by C. W. Hunt Company, West New Brighton, N. Y. Any one interested in this class of machinery should send for a copy of this catalogue, which will be sent free to readers mentioning this magazine.

Graphite brushes are the subject of an illustrated 12-page booklet published by the Joseph Dixon Crucible Company, Jersey City, N. J. This booklet contains considerable information of importance to all users of graphite brushes, and this same information is also of interest to many others connected with mechanical and electrical pursuits. A free copy will be sent to any of our readers upon application.

The 1908 catalogue of the American Steam Gauge & Valve Manufacturing Company, 208-220 Camden street, Boston, Mass., is a fully illustrated cloth-bound volume of 246 pages, and is devoted entirely to gauges, valves, indicators and kindred appliances for governing, indicating, measuring, recording and controlling steam, water, air, gas, oil, ammonia and all other pressures. This company was established in 1851, and the claim is made that it operates the largest plant of its kind in the world. Among the numerous well-known marine specialties this company manufactures are the American Marine Board of Trade pop safety valves, the American duplex improved marine pop safety valves, the American Thompson improved indicators with new patented detent motion, an improved gas and oil engine indicator, etc. A copy of this catalogue should be in the hands of every marine engineer, naval architect, ship owner and builder. A free copy will be sent to every reader mentioning International Marine Engineering.



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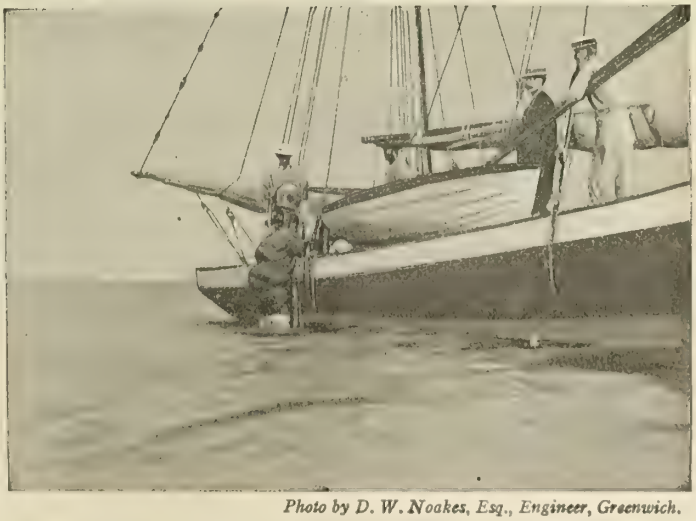

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

CALENDARS RECEIVED.

The Ashton Valve Company, 271 Franklin street, Boston, Mass., manufacturers of pop safety valves and steam gages.—A calendar with a handsome picture in colors entitled "The Winner," showing a fair yachtsman at the tiller of a cup defender.

O. C. & K. R. Wilson, 70 West street, New York, ship chandlers.—A nautical calendar showing high and low water at Governor's Island for every day in the year, with a table from which the high and low tide can be computed for seventy-five or more points on the Atlantic Ciast.

Heath & Company, Ltd., Observatory Works, Crayford, London.—A neat card calendar in white, silver and red, in the form of a shield and calling attention to the company's specialties, such as sextants, binnacles, compasses, barometers, binoculars, salinometers, clocks, drawing instruments, etc.

Morris Machine Works, Baldwinsville, N. Y., manufacturers of centrifugal pumping machinery, vertical and horizontal engines.—A calendar with a handsome reproduction in colors of A. J. Elsley's painting "Private and Confidential," portraying a little girl whispering secrets into the ear of her pet mastiff.

Elisha Webb & Son Company, 136 South Front street, Philadelphia, Pa., manufacturers of and dealers in steamship equipment and supplies.—A nautical calendar showing high and low water at Philadelphia for every day in the year, with a table from which the high and low tide can be computed for seventy-five or more points on the Atlantic Coast.

The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, manufacturer of stay-bolt iron and steel bars.—A handsome calendar lithographed in several colors, from the original painting by Franz Charlet, entitled "First Days of Spring," showing three small boys whipping their tops on the brick-paved wharf of a Belgium fishing town. These boys are dressed in bright colored jackets, balloon-like trousers and wooden sabots.

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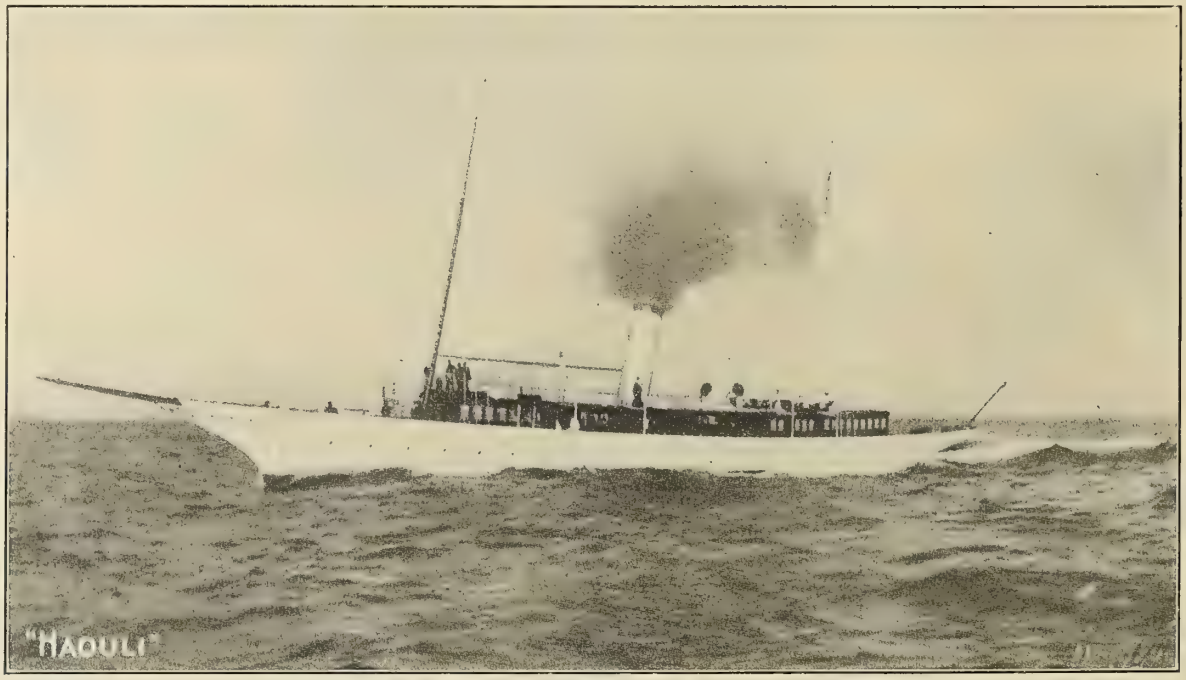

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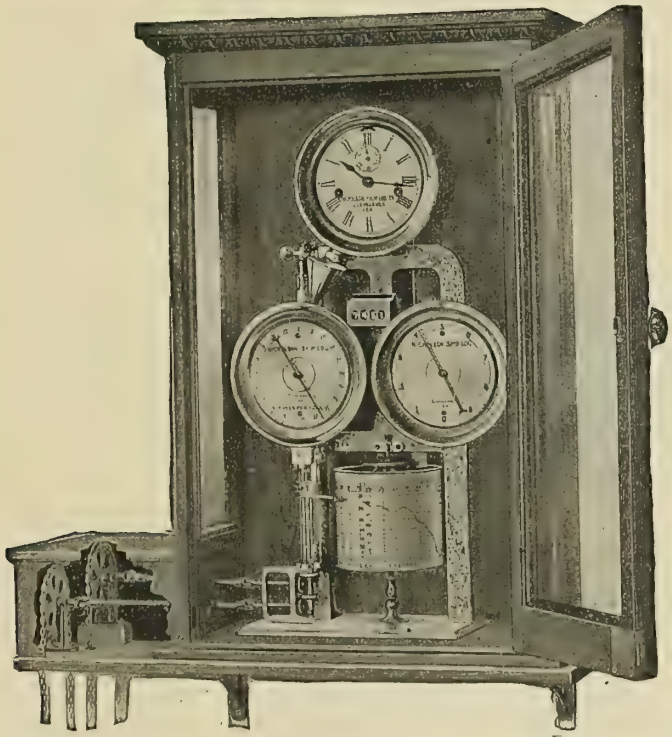

THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

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NICHOLSON SHIP LOG CO.
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Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

The Bourne-Fuller Company, Cleveland, Ohio, manufacturers of "Climax" rivets and dealers in iron, steel, pig iron and coke.—An attractive wall calendar in black and white.

The Ross Valve Company, Troy, N. Y., manufacturer of regulating valves, feed-water heaters, etc.—A card calendar in a neat leather case.

International Boiler Works Company, East Stroudsburg, Pa.—A wall calendar with a handsome reproduction in colors of the French painting "The Cavalier."

The Delaware Marine Supply Manufacturing Company, Wilmington, Del., manufacturer of marine hardware and ship fittings of all kinds.—A calendar in a neat white bronze frame.

The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York City, manufacturer of Eureka, Paragon and Red Cross fire hose.—A calendar with a picture lithographed in colors, showing a rescue at a fire in a great city.

The Flannery Bolt Company, Frick building, Pittsburg, Pa., manufacturer of Tate flexible stay-bolts.—A calendar with a very determined looking bull dog examining one of the company's stay-bolts and showing his intelligence by the observation, "It looks good to me."

Star Brass Manufacturing Company, 108 East Dedham street, Boston, Mass., manufacturers of marine engineering specialties.—A large wall calendar calling attention to the company's pop safety valves, revolution counters, marine clocks, steam engine indicators, etc.

TRADE PUBLICATIONS

GREAT BRITAIN

Water-tube boilers for all duties are described and illustrated in a catalogue issued by Clarke, Chapman & Company, Ltd., Gateshead-on-Tyne. Among the advantages claimed for these boilers are the following: "All straight tubes, no screw joints, easy inspection, maximum steam release, minimum deposit, easy cleaning."

The price list of packings and pipe and boiler coverings issued by Robert Beldam, 79 Mark Lane, London, E. C., lists high-pressure metallic packings, low-pressure and pump metallic packings, "Tauril" patented high-pressure jointing, miscellaneous rubber and asbestos goods, "Garlock" packings for steam, water and ammonia, "Wilpaco" hydraulic packing, "Halata" belting, leather hose, etc.

The Sturtevant sectional catalogue, published by the Sturtevant Engineering Company, Ltd., 147 Queen Victoria street, London, E. C., will be sent free to any of our readers upon application. Among these the company particularly draws attention to the following: Mechanical draft for boilers, heating and ventilating, ship ventilation, mine and tunnel ventilation, dust exhausting, sawdust and shavings removal, drying, steam and fume removal, smithy equipment, feed-water heaters, crushing, grinding and ore reducing machinery, ore concentrators.

The Sturrock patent furnace bridge for marine and land boilers is described in illustrated circulars published by the sturrock Patent Bridge & Engineering Company, 41 Reform street, Dundee. This furnace bridge is said to be in use in the foremost steamship lines throughout the world. "The object of the Sturrock furnace bridge is to provide at moderate cost a bridge wall which shall be indestructible, can be easily removed and replaced without sacrifice of the material comprising it, and which shall assist in the perfect combustion of the fuel in the furnace, and also act as a smoke consumer. The bridge wall is composed of cast-iron bars with suitable air openings through it, admits air freely from the ash pit to the back of the bars and through the spaces between to the fire, whereby the usual pile of dead fire against the bridge wall is done away with. Air openings are also provided through the bars at the crest of the bridge, by which highly heated air is admitted to mingle with the gases from the furnace, as they pass into the combustion chamber, thus effecting their complete combustion and preventing smoke. The bars never reach fusing point; do not burn or twist, and no clinker ever adheres to them. When in use the bars of the bridge are securely locked in place, but are provided with means for readily removing them when necessary. The whole bridge wall can thus be taken down to admit of examination of all parts of the furnace and be as easily replaced without destroying any part of it, thus effecting a great saving in comparison with bridge walls of brick and fire-clay, and doing away with all corrosion of the furnaces, which always takes place under the brick work."

"Wedgring" joints and fittings, made by Benjamin Parker, Ltd., Birmingham, are the subject of an illustrated booklet which will be sent to readers of INTERNATIONAL MARINE ENGINEERING upon application.

A paper on steam engine packing, by Mr. A. McSwiney, has been published in pamphlet form by the Birmingham Association of Mechanical Engineers, and free copies will be sent to any of our readers upon application.

Six special catalogues of nautical and scientific instruments and other specialties, such as sextants, binnacles, barometers, ships' logs, thermometers, etc., are published by Heath & Company, Ltd., No. 2 Tower Royal, Canan street, London, E. C. Any or all of these catalogues will be sent free to readers mentioning INTERNATIONAL MARINE ENGINEERING.

R. Craggs & Sons, Ltd., Middlesborough, are distributing literature describing this firm's "New System of Shipbuilding," which is said to be specially adapted for vessels carrying oil in bulk, and that it is a practical solution of the problem of longitudinal strength in vessels of limited draft for exceptional length. The company has launching slips 700 feet long and an annual capacity of 50,000 tons gross.

All users of metallic packing should write the United States Metallic Packing Company, Ltd., Soho Works, Thornton Road, Bradford, for a copy of this company's 144-page catalogue, a free copy of which will be sent to readers mentioning INTERNATIONAL MARINE ENGINEERING. A large part of this catalogue consists of testimonials from users of this packing.

An improved suction gas plant is the subject of illustrated circulars issued by T. H. & J. Daniels, Ltd., Stroud, Glasgow. The advantages of this company's suction gas producer plant are stated to be that it occupies a minimum amount of space, no gas holder or steam boiler being necessary; that there is no expensive cost of fixing; that either anthracite, peas or broken coke may be used; that the cost of working is about one-tenth of a penny per horsepower per hour; that the plant is of the best workmanship and design throughout. The company guarantees to replace or repair any parts or break within twelve months from delivery, provided such break is due to fault of workmanship or material.

BUSINESS NOTES

AMERICA

AT A MEETING OF THE STOCKHOLDERS of the Eureka Fire Hose Company, held Jan. 20, it was decided to change the name of the company to the Eureka Fire Hose Manufacturing Company.

THE COMBINED COMPANIES of the American Institute of Marine Underwriters have agreed to the following resolution of a committee duly appointed, which resolution has been submitted to the Lighthouse Board. The action of the Institute will be brought to the attention of the affiliated bodies in other countries, with a view of obtaining from underwriters generally a favorable consideration of submarine signaling and the extension of the system both by governments and vessel owners. The signal system in question is made by the Submarine Signal Company, 88 Broad street, Boston, Mass.: "Whereas, it has been brought to the attention of the American Institute of Marine Underwriters that the system of submarine fog signaling has been adopted by the lighthouse authorities of the United States, England, Germany, France, Canada, Belgium and other maritime countries; and that the countries named have already begun to place such signals at danger points and at the entrance to important harbors on their coasts; and Whereas, ships representing one and one-half million tons of the mercantile marine of the world, besides many naval and other government vessels, are now equipped to receive submarine signals; and Whereas, it has been proved by the tests made by the various governments and by the reports from navigators that submarine fog signals are much superior to fog signals in air in so far as reliability, distance and direction are concerned; so that by the use of such signals the safety of navigation is largely increased, and a considerable saving of time is gained; therefore, be it Resolved, that the American Institute of Marine Underwriters hereby recognizes the system of submarine signals as an important aid to navigation; that the action of the United States Lighthouse Board, in providing for the equipment of all lightships on the coasts of the United States and on the Great Lakes, has the approval of this Institute, and that we respectfully recommend to the Lighthouse Board the extension of the system to all fog-signal stations of the United States."

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(Land, Marine, and Locomotive).
By BRYAN DONKIN, M.Inst.C.E.
"Probably the MOST EXHAUSTIVE *resumé* that has ever been collected. A PRACTICAL BOOK by a thoroughly practical man."—*Iron and Coal Trades' Review.*

LONDON: CHARLES GRIFFIN & COMPANY, LTD., EXETER STREET, STRAND, W.C.

The Machinery Club of the City of New York has been organized for the purpose of providing a pleasant meeting place for entertainment in the heart of the business section of Manhattan, conveniently located to most of the offices of the concerns interested in the various branches of the machinery and metal trades. Quarters have been engaged on the twentieth and twenty-first, and possibly the nineteenth floors also, of the Fulton Terminal building on Church street. The space reserved, from 36,000 to 54,000 square feet, being ample for lunch and grill rooms, library, assembly rooms and possibly a few bed rooms for the use of out-of-town members. The club will primarily be a lunching club, but it is expected that the unusual superiority of the appointments and the convenient location will make it a general rendezvous for the machinery trade in New York.

The annual meeting of the executive committee and election of officers to serve for the ensuing year of the National Association of Engine and Boat Manufacturers was held at the Hotel Manhattan, New York City, Jan. 13. It was largely attended and was by far the most interesting meeting held by the committee. The reports of the various officers or committees showed the association to be in a flourishing condition. Thirty new members were admitted during the past year. Several matters of interest were taken up and discussed. One was the establishing of a bureau of information whereby all members of the association might be informed on new devices, their success and improvements; also the matter of establishing a bureau whereby members might avail themselves for their clients of help, such as captains, engineers, crews, mechanics, etc. It is very often the case that either the engine builder or boat builder is called upon to furnish either an engineer or captain or men to form crews; also at times desirous of securing for themselves help of various kinds, and it was believed that in establishing such a bureau that it would be of benefit to the association. Applications for positions can be filed with the secretary of the association at the office, 314 Madison avenue, New York City, or blanks secured from him, to be filled out by all seeking employment. The officers elected were as follows: John J. Amory, president; Henry R. Sutphen, first vice-president; W. J. Reynolds, second vice-president; J. M. Truscott, third vice-president; James Craig, treasurer, and Hugh S. Gambel, secretary.

The Detroit Seamless Steel Tubes Company, Detroit, Mich., is installing additional machinery to enable the company to make larger sizes of its cold-drawn seamless steel mechanical tubes.

Any Engineer Can Secure Absolutely Free, express charges paid, a large can of Keystone grease, a heavy brass grease cup, and an engineer's collapsible lunch box, by filling out and mailing to the Keystone Lubricating Company, Department V, Philadelphia, Pa., the coupon which appears in the company's advertisement in this issue of International Marine Engineering.

Nicholson Ship Logs.—Barrett & Lawrence, 662 Bullitt building, Philadelphia, Pa., Eastern agents of the Nicholson Ship Log Company, Cleveland, Ohio, among other orders received recently for No. 1 Nicholson ship logs, have received contracts to equip the steamship *Oklahoma*, now building at the yard of the New York Shipbuilding Company, Camden, N. J., and for the 125-foot motor yacht *Allegro*, now building at Essington, Pa., for Mr. George C. Thomas, of Philadelphia.

The statement of profits for the nine months ending Sept. 30, issued by the Chicago Pneumatic Tool Company, Fisher building, Chicago, shows the total profits for the above-mentioned period to be $727,284.75. The surplus for the nine months is $264,759.07, and the total surplus to the company's credit is $1,143,168.51. Dividends amounting to $190,063.49 were paid.

The Peerless Rubber Manufacturing Company has opened a new retail department at 88 Chambers street, New York, which connects with the present store at 16 Warren street. Owing to the somewhat limited space the company has not been able to carry a large stock, but with the additional store it will always have on hand a full and complete line of mechanical rubber goods to fill immediate demands.

Starrett Tools as Jail Breakers.—The Monday morning *News*, of Vicksburg, Miss., of Sept. 30 last, contains an item telling about a test at the county jail in which the man playing the part of a prisoner cut through the steel bars of the supposedly tool-proof cages in two hours and twenty-eight minutes, using nothing but No. 250 saws made by the L. S. Starrett Company, of Athol, Mass.

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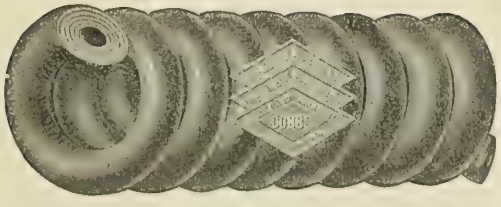

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SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

BUSINESS NOTES

GREAT BRITAIN

The "Handy" pocket knife, manufactured by T. A. Mackereth & Company, 81 Cockayne Place, Meersbrook, Sheffield, is described by the firm as follows: "Two blades (a knife and screwdriver) are inserted into a square brass mandrel tube, which has been fitted with a rocking lever which will release either of the blades at will. The whole tube is then insulated with celluloid, which has been tested to 800 volts. The total length of the knife is about 3½ inches when closed and 5⅝ inches when open. We also make a large size when requested, also a single blade, which is insulated in a similar manner. Celluloid is used in preference to vulcanite, as it will not break or crack with a fall.

Water circulators are described and illustrated in a catalogue issued by the British Boiler Water Circulator Syndicate, 2 Ashforth street, Nottingham, which has lately been drawing attention to its special circulator used in steam boilers. It is claimed that it does not need any structural alterations whatever to the boiler. "Moreover, it can be removed, inspected, and replaced by an ordinary workman in something like two hours. The object of the appliance is to increase the water circulation and facilitate steam generation by giving greater freedom to the gas-containing globules formed on the heating surfaces. It is entirely automatic in action. The feed-water sent into the boiler must first pass through the apparatus illustrated, where it is not only heated but is also cleansed and softened, while, further, the grease is extracted. The feed inlet is indicated, and the settling chamber for impurities is also shown. The sediment, etc., can be ejected by means of a blow-off cock and pipe, and in fact the only attention necessary is that wanted for occasionally blowing out the impurities which are trapped. The company are able to publish a considerable number of testimonials as to the value of their circulator. Its construction is perfectly simple, and it has no delicate parts. The usefulness of moving water rapidly over the heated surfaces of boilers is now being recognized, and in increased steaming capacity and in the use of impure or dirty water this appliance should show advantages."

The bridge patent log manufactured by Wilson & Gillie, New Quay, North Shields, has been designed for use as a bridge log, the register being fixed to the bridge rail, the rotator towing alongside, the line revolving in ball bearings at the end of an outrigger. The advantages are obvious. The log may be consulted by the officer in charge of the navigation at any moment. The rotator tows clear of any rubbish thrown over the ship's side, and is not fouled should the vessel have to come astern. The line and rotator have been so constructed that the rotator may be towed alongside in all kinds of weather and manœuvres with perfect safety. The motion of the log line is communicated to the pointers on the dial by means of epicyclic gearing and a large worm wheel, driven by a worm on the log spindle. The bridge log has, therefore, fewer parts than other logs and less wear and tear. The price of the log, with two rotators, two shoes, and ball-bearing with special log line, is £4-10-0. The outrigger is best made of 1¼-inch steel pipe from 13 to 14 feet long, and projecting 9 to 10 feet outboard.

Fastest Boat in the World.—The new 33-knot turbine torpedo boat destroyer *Tartar* recently carried out a most successful official preliminary trial on the Maplin Sands. The speed actually obtained with a greater load than stipulated by contract was 34.857 knots per hour, as a mean of six runs on the Admiralty-measured course. This exceeds by nearly half a knot the speed obtained by any other boat of this class. During the course of the two hours' run the *Tartar* maintained 34.7 knots. The greatest speed yet made by this vessel was attained on Tuesday last, when, after running round from Southampton to the Maplins, at an average speed of 34.0 knots, she broke all records by reaching 35.952 knots per hour as a mean of runs with and against tide on the Admiralty course. The *Tartar* is 270 feet in length, and carries an armament of three 12-pounder guns and two torpedo tubes. The six boilers are of the Tornycroft type, using oil fuel exclusively, and these, as well as the turbines, have been constructed by the builders of the vessel, Messrs. John I. Thornycroft & Company, Ltd., of Southampton. The Admiralty officials present included Mr. J. H. Ball, Mr. H. G. White and Commander Frowd, R. N. There were also present Col. Russo and Maj. Girola, of the Italian Navy, and Lieut. Cassel, of the Swedish Navy.

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etc, etc.

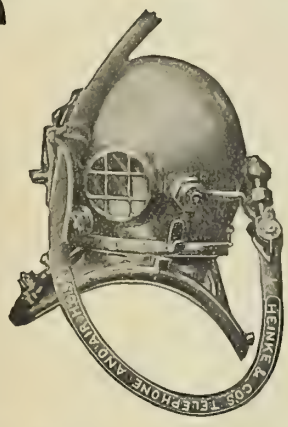
TRADE PUBLICATIONS.

AMERICA

Marine engineers will be interested to note the publication of a new and complete catalogue of steam specialties by the Griscom-Spencer Company, 90 West street, New York City, formerly the James Reilly Repair & Supply Company. The Reilly multi-coil feed-water heater is one of the best known marine feed-water heaters in the United States. Its introduction into the Great Lakes district has been recent, but such installations as have been made are stated to have shown the remarkably high efficiency and to be arousing much attention among the Lake engineers, where hitherto the straight-tube heaters have been in general use. The catalogue explains in detail the scientific theory embodied in the use of a large number of small-diameter copper tubes, coiled helically on a small radius, whereby the violent agitation so necessary to the efficient and rapid absorption of heat in a closed heater is secured in the highest degree. This catalogue is of more than usual interest and value by reason of the rules and tables it contains, showing the calculations and results to be secured from the installation of feed-water heaters. These tables are figured for several different kinds of steam plants, for different values of coal and for various initial temperatures of feed, and show the remarkable yearly cash savings per horsepower of main engines effected by the use of heaters. The catalogue also contains an interesting discussion of the various phases of the feed-water question, and the information will be of much value to any engineer as a guide for determining the selection of the feed-water heaters. The catalogue also describes briefly the other well-known specialties of the Griscom-Spencer Company. The Reilly multi-coil evaporator is designed especially for use on shipboard for distilling sea-water, for drinking purposes and for make-up boiler feed. The Reilly multi-coil condenser, to be used in conjunction with the evaporator. The Reilly water filter for rendering distilled water sweet and palatable. The Reilly grease extractor feed-water purifier and filter for removing oil, grease and other impurities from feed-water. The catalogue is elaborately illustrated with half-tones and diagrams. Copies will be sent upon request to readers mentioning International Marine Engineering.

Turbine engines, separate, or driving dynamos or blowers, and centrifugal pumps, turbine or motor driven, are described and illustrated in a 30-page catalogue published by the De Laval Steam Turbine Company, Trenton, N. J. "In the following pages will be found brief descriptions of the different types of high-grade turbine and motor-driven machinery manufactured by the De Laval Steam Turbine Company, at their works, Trenton, N. J., for the past six years. Four European De Laval companies are producing the same class of apparatus under De Laval patents, their combined product in the last sixteen years being over 150,000 horsepower. All experimental work on the De Laval turbine and the De Laval centrifugal pump was completed before the machinery was placed on the market, which fact is an assurance against annoyance, due to delays so often experienced in other types of steam turbines and centrifugal pumps of various designs."

"A Brief History of Lubrication" is the title of a pamphlet published by the Keystone Lubricating Company, Twentieth street and Allegheny avenue, Philadelphia, Pa. "You cannot hold oil on a bearing. Oil lubricant means a continuous stream of oil. It means waste and mess and expense. There is only one perfect lubricant, and that is Keystone grease. Mind you, we emphasize the Keystone. There is much grease that is worse than oil. Much grease is made by adding resinous oils, tallow, graphite, talc, asbestos or beeswax to a petroleum base. This gives a heavy bodied grease that has all the appearance of efficiency. If there were nothing better, the wise engineer should sidestep it and stick to his oil. Keystone grease is applicable to all kinds of machinery by means of any ordinary oil-feeding device, and is particularly adapted for ring, roller and chain oil bearings. It is also applicable to all high-speed engines, dynamos, generators, fans, governors, pulleys, etc. Its non-staining quality makes it a great favorite with textile manufacturers. Regardless of conditions, 1 pound of No. 6 density is guaranteed to outlast 4 to 5 gallons of any lubricating oil. No. 6 density of Keystone grease obviates the necessity of supplying several different oils for different purposes. It fulfils every requirement and does it perfectly. No. 6 density possesses greater ability than any oil with less frictional resistance, and it represents the very acme of economy and convenience."



C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road,
Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

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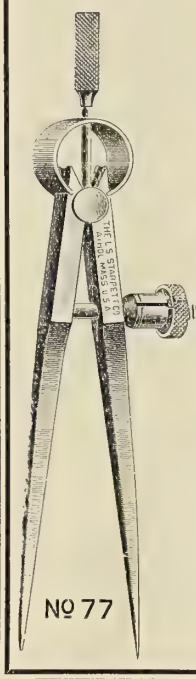
Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

"Patents for Profit" is the title of a 60-page booklet distributed by Mason, Fenwick & Lawrence, patent and trademark lawyers, 602 F street, N. W., Washington, D. C.

All of our readers interested in the subject of valves and steam fittings of any kind should write Crane Company, Chicago, Ill., mentioning this magazine, and ask to be put on the free mailing list of the monthly magazine, *The Valve World.*

The Edson pressure recording gage made by the Ashcroft Manufacturing Company, 85 Liberty street, New York City, is the subject of a pamphlet published by the manufacturer. "The Edson pressure recording gage is the most accurate and sensitive instrument made for recording steam, air, gas, water, ammonia and all fluid pressures. The Edson gage is indispensable in water works, power and refrigerating plants and all places where a record of pressures carried is desired. The saving resulting from the use of one of these gages, in even the smallest plants, is such that it very quickly pays for itself. In the Edson, the recording mechanism is actuated by a corrugated diaphragm of tempered steel, which is carefully treated by a special process. This construction is very much superior to that of the Bourbon tube employed in other recording gages. A Bourbon tube of any design is subject to permanent set, making repairs or readjustment necessary at frequent intervals. On the other hand, the Edson gage will remain accurate for many years. The rectangular chart employed in the Edson gage is far more superior, for practical purposes, than the round chart generally used in other recording gages. With the rectangular chart it is possible to obtain a complete record of the pressure carried at all times, day and night, while with a circular chart there is always a chance of the pressure lines joining at the end of each twenty-four hours' record, unless the chart is removed precisely at the end of that period. This, of course, destroys part of the record. The marking point used in the Edson gage is either lead or silver, the latter for use with special chemically prepared paper. Either style marker is superior to an ink marker, which never makes a line fine enough to permit a close and accurate reading of the record."



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The new quick-adjusting, automatic closing nut on our spring dividers saves much valuable time in opening and closing spring-bow calipers and dividers.

Our instruments of precision of all kinds show the latest state of the art.

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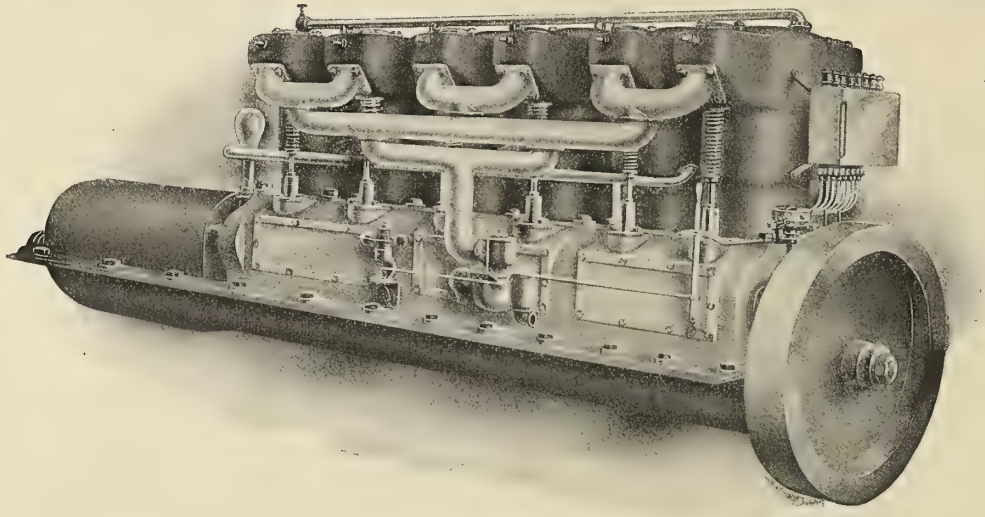
The L. S. Starrett Co.

Athol, Mass., U. S. A.



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or any other purpose.

All Sizes. Immediate Shipment. New and Second-hand.

State your wants.

Engines and Plants installed and guaranteed.

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Outfit now and be ready for coming season.

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This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks," discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

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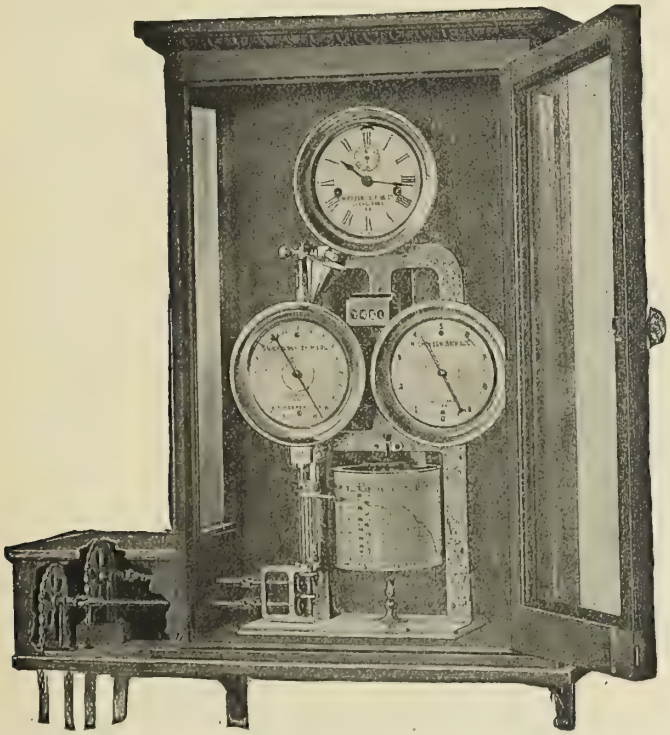


THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations, viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge, or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.
CLEVELAND, OHIO, U. S. A.
Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

The Arbecam Alidade, made by the E. S. Ritchie & Sons, Brookline, Mass., is described in an illustrated catalogue distributed by the maker. "It is specially designed for instantly taking bearings, cross bearings, etc., directly from the compass, without possibility of error. It is unaffected by vibration, rolling or pitching, and adjusts itself to every motion of the vessel. Compass never exposed to the weather. A safeguard in approaching land, entering harbor, taking departure, shaping courses, etc. Endorsed by high naval and merchant marine officials. The attachment for the correction of the deviation of the compass is a contrivance of the greatest importance and value to the navigator, as it precludes the possibility of making a mistake in applying the deviation, as but one operation is necessary to compensate all bearings for the ship's heading. The attachment consists of a pointer and a graduated segment of a circle, the graduations extending 25 degrees east or west, as marked on the plate. The pointer is secured at the middle line of these divisions, bringing the sights, pointer and needle supported on the compass dial in the same vertical plane."

The "Ideal" automatic pump governor made by the Ideal Automatic Pump Governor Company, 15 Whitehall street, New York City, "is the only pump governor ever approved by the National Board of Supervising Inspectors of Steam Vessels. It is the only pump governor on the market having a body of oil in water pressure cylinder. The piston and water pressure cylinder is protected from corrosion and sticking fast when the pump that it is installed on is pumping salt water or other liquids that leave a deposit. The body of oil in the trap and cylinder floating on top of the water or other liquids being pumped follows the piston in both of its upward and downward strokes, thoroughly lubricating and protecting the wearing surface of cylinder walls and piston from all liability to be corroded or to stick fast when called on to act. The greatest fault, heretofore, with automatic pump governors is that they corrode and stick fast, and thereby fail to work when needed. This can all be overcome by the use of the ideal governor, on account of the body of oil floating on top of the salt water or other liquids being pumped under pressure in the cylinder and pipe trap between the piston and pump's pressure stand-pipe proper."

The Universal double-tube injector is the subject of an illustrated catalogue published by the Schutte & Koerting Company, Philadelphia, Pa. The description furnished by the company of this injector, and the reasons given why the Universal double-tube injector should have preference, are as follows: "The injector is the combination of two jets—the lower jet proportioned for extreme temperature and for quick and strong action, which includes maximum high suction. The discharge is into the upper jet, where the water receives the additional strong impulse to carry it into the boiler. The pressure and volume from the lower jet correspond to the steam pressure, and this is as it should be to answer the requirements of the upper or forcing jet. The varying volume insures the proper working at high steam pressure as well as at low, and increased pressure admits of increased high temperature. The self-governing or automatic features are the reason why this injector gives the same high duty and works with the same strong and positive action under varying pressures of steam with highest temperature of feed-water under pressure or high lift. On page 1—A—2 we explain the general action of the injector and its resulting qualities, due to the double-tube principle and the proper proportioning of the same. While this is one of the reasons of its high duty, it is equally important that the mechanical construction and combination of parts should be correct in principle and execution, so as to provide convenience of manipulation and positive movements of mechanism. There is no part in the construction of the Universal double-tube injector to which the most exacting mechanic could take exception. There are no divisions formed by the makeshift of double shoulders or taper threads. All joints have single shoulders and are tight. There is no delicate adjustment of nozzles and no slip joints to wear and leak; all nozzles are fixed. There is no (so-called) automatic starting check valve to stick fast or to stop the action of the injector by a grain of sand under its seat. The starting valve is connected to the hand lever and compelled to move with it. The material used is the mixture of best copper and tin, new metal only, and so guaranteed. The notable features may be thus summed up: The injector needs no adjustment; it does the same high duty, and is always ready to start under all variations of steam pressure, of water supply, and of service, warm or cold water, pressure water, or highest suction. The injector never fails to start, however hot, and never breaks through shocks or jars, however rough and hard. The last quality has made the injector almost essential for steam autos and road engines. For locomotive service we make injectors to any standard of specified dimensions and capacity."

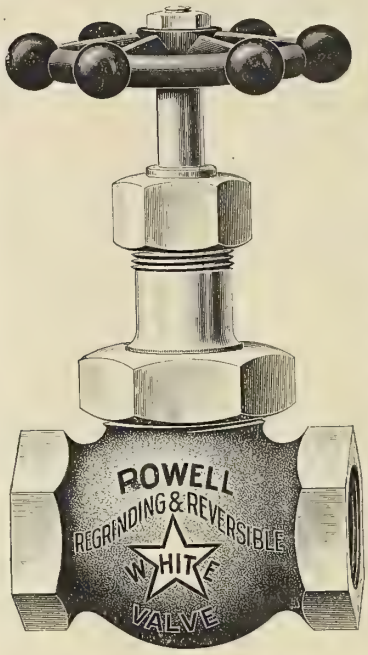
The minutes of the annual meeting of the National Association of Engine and Boat Manufacturers, 314 Madison avenue, New York City, held Dec. 12, 1907, at the Engineers' Club, have been republished in pamphlet form by the association. Anyone interested in the work of the association should write the secretary, Mr. Hugh S. Gambel, asking for a copy of the minutes and for information regarding the scope of the association.

"Comparative Weight. Volume and Price of Lubricant" is the title of a folder published by the Keystone Lubricating Company, Twentieth street and Allegheny avenue, Philadelphia, Pa. "A most interesting and rarely appreciative comparison of oil and grease is that of weight and volume. The United States gallon is made to contain 8.3 pounds of distilled water. Distilled water is the basis of specific gravity. The average specific gravity of lubricating oils is .97. That is, when a certain amount of distilled water would weigh 10 units, the same volume of oil would weigh .97 as much. Therefore, a gallon of the average lubricating oil weighs 8.051 pounds. Keystone grease is guaranteed to be equal to 4 to 6 gallons of any oil for lubricating purposes. Therefore, the guarantee may be made to read that 1 pound of Keystone grease would equal 40.255 to 48.306 pounds of any lubricating oil. Are you paying freight on your lubricant? Are your teams hauling your lubricant many miles? Keystone grease, although not a liquid, is lighter than water; yet assume that specific gravity were the same, a gallon of Keystone grease would weigh 8.3 pounds. Now, 1 pound of Keystone grease is equal to 40.225 to 48.306 pounds of any oil. A gallon of Keystone grease is equal to 333.8075 to 400.9398 gallons of any oil. We guarantee 1 pound of Keystone grease to equal 3 to 4 pounds of any other grease. We have worked out a table giving prices of some other greases, and show what you can afford to pay for Keystone."

Marine and stationary packings are described and illustrated in one of the handsomest catalogues we have ever seen, both as regards to illustrations, typography and binding. This catalogue is issued by the Garlock Packing Company, Palmyra, N. Y., and a free copy will be sent to every reader mentioning International Marine Engineering. The introduction to this catalogue states: "Garlock packings have for the last quarter of a century been the standard of the world. They need no introduction to mechanical men. The great popularity and the splendid service they have given on every class of work prove them beyond all question the best packings on the market. To keep pace with the tremendous increase in steam and hydraulic pressures, due to the vast improvements in the manufacture of modern machinery—and with the changed conditions arising from the introduction of gas as a motive power—we have brought forth many new packings. In this catalogue we are placing before our customers all of our latest improvements and inventions. We desire to call particular attention to our complete line of metal packings, which are fully described herein. In the manufacture of packings there is a wide range in the choice of materials. It is here that we have taken the lead. We feel that our great success has been due primarily to the fact that we consider the best none too good and high-grade goods always the most economical. We have always insisted on the best of everything —the best design, the best material, the best workmanship. It is because of this that we are to-day the largest manufacturers and distributers of piston packings in the world. Our stores and offices stretch from New York to San Francisco and from Boston to New Orleans. Our many factories, which are the largest and best equipped of their kind in the country, are so located that we can fill the requirements of our stores promptly and efficiently. All of our stores carry a very complete line of packings in stock, and, with the exception of metal packings, all ordinary orders can be filled the day received at the factory. For the convenience of our customers the fibrous or soft packings are sold in three forms, that is, ring, spiral or coil. Each form has its particular advantages for certain kinds of work. The location of our numerous branch stores and factories is such as to give us the greatest advantage in serving our customers promptly. Look at the addresses of our branches on page 2 and you will see how well we have covered the sections of the United States with a view to quick service to any point whatever."

Powell's WHITE STAR Valve

the trouble eliminator



You don't have to change the disc every day as the metal is hard white bronze composition that will stand constant hard usage.

Used as a throttle on your steam pump it will outlast a large number of vulcanite or composition discs, and will outlast any other valve from two and five to one.

Don't take our word for it—TRY ONE.

Your jobber will supply it if YOU insist. If he won't, ask us who will. Look for the name.

THE WM. POWELL COMPANY

CINCINNATI, OHIO

New York: 95 Liberty St., 254 Canal St. Boston: 239-45 Causeway St.
Philadelphia: 518 Arch St. Pittsburg: 419 Fulton Bldg.

Engines and boats are the subject of catalogue No. 5 issued by the C. F. Sparks Machine Company, Alton, Ill. The company claims superiority for its products in quality, prices and terms.

"Aids to Navigation" is the title of a 30-page illustrated catalogue issued by the Nicholson Ship Log Company, 409 Superior street, Cleveland, Ohio. "The Nicholson recording ship log is a radical departure from all other types of nautical measuring devices. In addition to giving the mileage sailed, it shows the speed per hour on a dial and records this speed on a chart for every minute of the trip. These records can be dated and filed away for further reference, and should any accident or controversy occur, they would furnish incontestable evidence. The successful application of the speed of the moment dial and the record is entirely original with the Nicholson log."

"The motor that motes" is described and illustrated in a catalogue issued by the Bridgeport Motor Company, Bridgeport, Conn. This company does not wish any of its customers to buy its motors without thorough investigation, and will therefore make an appointment for a trial trip at any time, by giving notice a little in advance. The Bridgeport motors are guaranteed to be made from the best material, in a first-class, workmanlike manner, to have been subjected to thorough and careful trial and to be in perfect working order when shipped. They are guaranteed for one year against defective material and workmanship, and the company will furnish, free, duplicates of any parts proving defective, on return of the broken or defective part, at any time within one year from date of purchase. The catalogue is very clearly illustrated, and intending purchasers can obtain a good idea of the design of the "Bridgeport" motor, showing the accessibility of working parts, the construction of the cylinders, crank shaft, crank disk, piston, piston rings, connecting rod, piston wrist pin, pump and ignition device. The company makes a special point regarding its superior system of lubrication.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

"Collapsing Pressures of Lap-Welded Steel Tubes."—A paper by Prof. R. T. Stewart, read at the May, 1906, meeting of the American Society of Mechanical Engineers, 25 West Thirty-ninth street, New York City, has been republished in pamphlet form by the society. This research was undertaken for the purpose of supplying an urgent demand for reliable information on the behavior of modern wrought tubes when subject to fluid collapsing pressure. Every means known to engineering science that could aid in the accomplishing of this undertaking has been used and every possible effort made to get at the root and to have the research yield trustworthy data. It was planned and executed under the immediate direction of the author, at the McKeesport works of the National Tube Company, and occupied during a period of four years the time of from one to six men. A free copy of this pamphlet may be obtained upon request from the National Tube Company, Frick building, Pittsburg, Pa., by those of our readers who will mention this magazine.

The Dake steam turbine is described and illustrated in a catalogue published by the Dake-American Steam Turbine Company, Grand Rapids, Mich. "The inventor, Mr. Charles W. Dake, an engineer of wide experience in his chosen field, was not satisfied with the results secured through the use of the vane-bucket. He accordingly entered upon a series of experiments, which culminated in the production of the recurved U-shaped bucket—a bucket having plain curved walls similar to the buckets used to-day in some types of turbines. This bucket was found to be but little better than the vane-bucket originally used by him. Further experiments were then undertaken, which resulted in the bringing out of the step-bucket now used in the Dake turbine. This bucket has stepped-curved walls as contrasted with the former plain type, and the steam is made to discharge at the end of the bucket instead of from the side. Improvements in the nozzles used and in the construction and control of the governor have gone steadily forward along with the other developments. The Dake-American Steam Turbine Company having established to its own satisfaction the superior merits of the Dake steam turbine, has entered the market prepared to furnish to users everywhere this—the best—type of steam power producer."

TRADE PUBLICATIONS

GREAT BRITAIN

"The Davie Specialties" is the title of an illustrated 72-page catalogue published by Davie & Horne, Johnstone, near Glasgow. The sections of this catalogue are devoted to evaporators, distilling plants, filters, non-joined heaters and filters, valves and references.

The Clayton system of fire prevention and extinction, fumigation and disinfection, as used on shipboard and for port fire extinguishing and disinfection, is the subject of a 44-page catalogue issued by the Clayton Fire Extinguishing & Ventilating Company, Ltd., 22 Craven street, London, W. C.

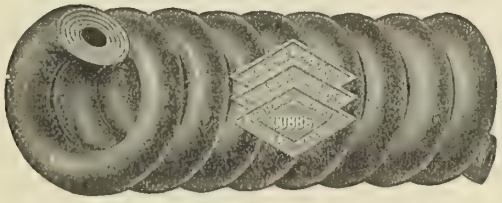
Particulars regarding the official 6-hour, full speed trial of H. M. S. *Tartar*, one of the larger class of ocean-going destroyers, built by Messrs. John I. Thornycroft & Company, Ltd., Southampton, have been reprinted from *Engineering* in the form of an illustrated folder, and free copies will be sent by Messrs. Thornycroft to any of our readers upon application.

The Horne steam trap made by J. S. Reid, 25 Wellington street, Glasgow, "has been designed to utilize to the best advantage the properties of a highly expensive material. This is acomplished by confining this material in the tube having the piston fitting therein, so that, on steam passing through the trap, expansion takes place immediately in the tube closing the valve. Upon the gathering of water the temperature is reduced, causing contraction, which opens the valve, allowing the condensation to be drained off, the valve again closing on the admission of steam. Owing to expansive part of trap being on the pressure side of valve and expansive material used being very sensitive and highly expansive, the trap will work instantly on the gathering of water; the opening given is very large, coping with large rushes of water, thus differing from most expansion traps, where the expansive part is on the exhaust side of valve, changes in temperature being indirectly communicated, consequently causing slower action and less variation. By providing the strong spring the trap can have variable setting, and will work efficiently on a varying pressure, neither blowing off steam at the lowest pressure nor straining itself at the highest pressure."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

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PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., East 11th Street and 3d Avenue, Oakland
BOSTON, MASS., 232 Summer Street
BALTIMORE, MD., 114 W. Baltimore Street
BUFFALO, N. Y., 600 Prudential Building
PITTSBURGH, PA., 913-915 Liberty Avenue
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

The Crosby Steam Gage & Valve Company, 147 Queen Victoria street, London, E. C., is distributing a new booklet dealing with the indicating of gas and oil engines.

Patented "Simplex" furnace bars for marine and land boilers, "especially adapted for burning all kinds of fuel with the best steaming results," are described in an illustrated circular published by Willock, Reid & Company, Ltd., 52 Queen Victoria street, London, E. C.

BUSINESS NOTES
AMERICA

Walter B. Snow, publicity engineer, 170 Summer street, Boston, Mass., has been elected president of the Alumni Association of the Massachusetts Institute of Technology.

The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York City, has elected the following directors: B. L. Stowe, N. F. McKeon, G. A. Wies. Officers for the ensuing year are: B. L. Stowe, president; I. B. Markey, vice-president; G. A. Wies, vice-president and treasurer; N. F. McKeon, secretary; W. F. Wies, assistant treasurer; W. F. Volz, assistant secretary.

The Power Specialty Company, 111 Broadway, New York City, manufacturers of the Foster patent steam superheater, has secured among recent contracts the following covering the installation of this superheater in the boilers indicated: Home Electric Light & Steam Heating Company, Tyrone, Pa., 840 horsepower in Heine boilers; Torresdale Filtration Plant, Philadelphia (second order), 900 horsepower in Heine boilers; Western Clock Manufacturing Company, La Salle, Ill. (second order), 300 horsepower in return tubular boilers; Bernheimer & Schwartz Brewing Company, New York City, 1,900 horsepower in Heine boilers; Garden City Company, Garden City, L. I., 200 horsepower in return tubular boilers; National Sugar Refining Company, Yonkers, N. Y., 1,134 horsepower in B. & W. boilers. It has also sold Foster superheaters of the independently-fired type to New Jersey Zinc Company, University of West Virginia, Abendroth & Root Manufacturing Company, Seacoast Canning Company. This latter company had within the past year equipped seven of its plants with Foster superheaters, the same being installed in return tubular type of boilers.

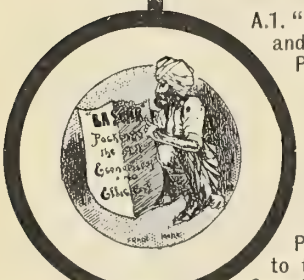
A Big Order for Hayward Hand Grenades.—S. F. Hayward & Company, 20 Warren street, New York City, recently received an order from the United States Navy Department for 2,000 Hayward hand grenades, to be delivered to the Mare Island Navy Yard. These grenades have also been adopted and used for many years by the United States War Department, United States Treasury Department and the United States Postoffice Department.

Ship Logs in New Yachts.—Mr. Roy A. Rainey, of New York City, has ordered a Nicholson ship log for his new steam yacht now building in Scotland, and Mr. Cyrus Curtis, of Philadelphia, has ordered one of these logs for his yacht *Lyndonia*. These logs are made by the Nicholson Ship Log Company, 409 Superior street, Cleveland, Ohio. The Eastern agents are Messrs. Barrett & Lawrence, 662 Bullitt building, Philadelphia, Pa.

Has Been Making Auxiliary Machinery for Ships for Fifty Years.—The American Ship Windlass Company, Providence, R. I., manufacturer of windlasses, towing machines, capstans, hoisting engines, anchors, sailing ships' outfits and auxiliary ships' machinery of all kinds, has been in business for more than half a century. More than 150 of this company's towing machines are in use. They have been used for towing oil barges across the Atlantic and around Cape Horn to San Francisco. They were used to tow the drydock *Dewey* to the Philippines.

The McArthur portable fire escape and "Jacob's ladder," made by the McAthur Portable Ladder Company, 1999 Clark avenue, Cleveland, Ohio, "is meeting with universal approval for regular use aboard ship. It combines extreme lightness with great strength. It will not tangle, swing or corrode, insuring durability and safety. These ladders are a combination of the strongest metals, steel hooks, links, snaps and steel chains, four flexible cables of the best galvanized wires, guaranteed against all ravages of the weather. This ladder is easily understood and thoroughly practical. No substitute is possible for this Jacob's ladder for safety and speedy action. It answers the same purpose on the small boat as on the large boat—is not a luxury, but an absolute necessity on every ship, and modern vessels are equipped with this excellent applance."

ROBERT BELDAM'S A.I. PATENT METALLIC 'LASCAR' PACKING.



A.I. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

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ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

J. & E. HALL Ltd.
(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)
REFRIGERATING MACHINERY

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HAMBURG AMERICAN LINE	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	46	CHARGEURS REUNIS	22	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	40	TYSER LINE	13	CANADIAN PACIFIC Ry.	12

etc., etc.

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The Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York City, announces that Mr. Henry H. Cyphers has severed his connection with the company.

Steel Hawsers vs. Manila Hawsers.—The American Ship Windlass Company, Providence, R. I., states that manila hawsers are expensive and are rapidly becoming more expensive, that they don't last very long and that they often break. The American Ship Windlass Company's towing machine uses a steel hawser, which the company states costs about half as much as one made of manila, and that it will outwear from four to eight manila hawsers. By the use of these towing machines the company states that you save time on tows and wear and tear on vessels and crew, that you can take care of the line automatically and haul up or pay out as you please.

To develop its export business the B. F. Sturtevant Company, Hyde Park, Mass., designers and builders of heating, ventilating, drying and mechanical draft apparatuses, fan blowers and exhausters, rotary blowers and exhausters, steam engines, electric motors and generating sets, pneumatic separators, fuel economizers, forges, exhaust heads, steam traps, steam turbines, etc., has secured the assistance of an English engineer, Mr. R. Hancock, who has had extensive experience in handling similar products abroad, and whose knowledge extends over the trade situation as well as the industrial conditions throughout Europe. Just before associating himself with the Sturtevant Company, Mr. Hancock traveled throughout all European countries, ascertaining the requirements of the trade and establishing further representatives on the Continent. This information, together with its splendid manufacturing facilities, enables the B. F. Sturtevant Company to send abroad standard products that meet the special demands of the various European nations and successfully compete with apparatus manufactured abroad. At the present time the Sturtevant Company has direct representation in London, Glasgow, Paris, Berlin, Vienna, Brussells, Turin, Stockholm, St. Petersburg, Moscow, Odessa, Kief, Warso, Karkoff and Herodfordshire. Further arrangements are now being made for representation in Japan, China and many of the British Colonies. The development of an extensive export trade by the B. F. Sturtevant Company solves the problem of balancing manufacture to an extent that will make possible a steady, average output such as is necessary to an economical and satisfactory industry.

BUSINESS NOTES

GREAT BRITAIN

Messrs. J. W. Brooke & Company, Ltd., Lowestoft, report that their business for the closing weeks of 1907 was most satisfactory, that during that period they received orders for Brooke marine motors from Osaka, Amsterdam, Christiania, Penang, Buenos Aires, Sydney and other foreign cities in addition to orders for the regular domestic trade.

Messrs. David Joy & Cooper, Quay Side Works, Bittern Park, Southampton, announce that H. M. S. *Lord Nelson* has been fitted with the firm's patent assistant cylinders, which are now fitted to more than 2,000,000 indicated horsepower, and are used by nearly all the navies of the world, while the number floating in merchant vessels is even larger than in warships.

The Teddington Motor Car & Launch Works, Teddington, S. W., in its exhibits at the recent Olympia Show, attracted a good deal of attention, especially to the simple and handy reverse gear patented by Mr. Hesse, one of the partners. This ingenious reverse is operated by a single lever without effort, and is quite dead except when wanted, the drive being direct from the motor to the solid propeller.

The Phosphor Bronze Company, Ltd., 87 Sumner street, Southwark, London, S. E., states regarding its phosphor-bronze casting alloys that they are made sound and homogeneous, and that wherever strength, toughness, resistance to corrosion and acids and greater durability are desired, this company's product will be found far better than gunmetal, brass and ordinary bronzes, and, in many cases, iron and steel.

"A new and ideal piston ring, which differs in every respect from all others in principle, working and construction," is placed on the market by Arnold Goodwin & Son, Ltd., Sumner street, Southwark, London, S. E. The manufacturers state that these rings have been fitted to more than 2,000 engines and cylinders of all types and kinds, working under every condition for every purpose, and that in all cases the results have been entirely satisfactory.

A free sample of Gre-Solvent, which is made especially for cleaning grease, paint, etc., from the hands, will be sent upon request to any of our readers mentioning this magazine by Beanland, Perkin & Company, School Close Works, Neville street, Leeds. This firm writes us as follows: "We notice that people are often asking for a good preparation for cleaning from the hands machine grease, paint, ink, etc., and thought you would be interested in Gre-Solvent, which we are just putting on the market in new form and sizes at much reduced prices."

Messrs. Harland & Wolff, Ltd., have let contracts for the fans to be installed upon the new Holland-America liner *Rotterdam*, which they are now completing. The contract calls for four 50-inch Sirocco fans and twenty-one other fans of the same make, 30 and 35 inches in diameter, all driven by direct-coupled motors. The Sirocco fans, although used upon many of the latest vessels of the United States, English, German, Japanese, Italian and Russian navies, the ships of the International Mercantile Marine and other lines, have been manufactured only in Belfast. They are now made in the United States by the Sirocco Engineering Company, 138 Cedar street, New York, in the new plant just completed at Troy.

The British Bronze & "Silvo" Metal Company, Ltd., 34 Old Broad street, London, E. C., is the sole manufacturer of "Silvo" metal. "The special Silvo alloys made by this company are Silvo white metal, for sheets, rods, wire, solid drawn or brazed tubes, boiler stay rods and castings of all kinds. The special qualities of this metal are its fine white color throughout; its non-rusting or non-corroding nature; its absolute immunity from the action of sea-water and many acids; its great ductility, whereby it can be rolled or drawn into the thinnest sheets or wire and stamped to any desired form for all sorts of hollow ware, for sanitary and water fittings, for ships' cabins and railway carriage work, for cycle and automobile makers, for tea sets, dish covers and all fancy articles such as are made of silver or electro-plate, and for many other uses. To prove its successful resistance to the action of sea-water, a length of Silvo tube was hung under the Brighton pier for over six months at a level midway between high and low water. It successfully withstood the alternate action of the air and sea-water with the rise and fall of the tide, and at the end of that time showed no sign of corrosion or of any other defect."

Herbert Morris & Bastert, Ltd., Empress Works, Loughborough, Leicestershire, write us as follows: "You have been told by various makers that they can make just as good a pulley-blocks as H. M. & B. It is a great pity that they did not see the wisdom of making good pulley-blocks before H. M. & B. set the standard twenty years gone. We challenge the statement that there are any pulley-blocks as good as those of H. M. & B., and the user in each case shall be the judge. We will send a pulley-block of any size from 5 cwt. to 20 tons, with chains for any height, carriage paid, to any user, to be put into use and tried at his convenience. There are no conditions attaching this offer (use the post card). Let the folks who can make just as good pulley-blocks as H. M. & B. do the same, and let the user judge. We despatch any size from stock same day as instructions received."

Launch from the Belfast Shipyard.—Messrs, Workman Clark & Company, Ltd., Belfast, recently launched from their south yard a new steamer built by them for Messrs. Lamport & Holt, of Liverpool. The new vessel is a valuable addition to their well-known "V" fleet, all the vessels of which fleet are fitted up as first-class passenger steamers. A company of visitors, representing the owners and builders, witnessed the function, and included Mr. and Mrs. Heywood Melly, of Liverpool. Just as the vessel began to leave the building slip, the interesting ceremony of christening and naming her *Verdi* was gracefully performed by Mrs. Heywood Melly. After the launch the party visited the engine works and inspected the machinery and boilers for the vessel. The *Verdi* is 445 feet long, with a gross tonnage of about 6,300, and has been specially designed, built and equipped for the owners' South American passenger and general cargo trade. Accommodation for over 150 first-class passengers is provided, and the staterooms, which are large and airy, are arranged to give the maximum of comfort in a hot climate. Several pairs of these rooms have communicating doors, so that they can be occupied as family suites. The dining saloon, placed at the forward end of the bridge house and extending the full width of the vessel, is a handsomely appointed saloon, decorated and furnished in oak. Dining accommodation is provided for over 100 persons, the tables being arranged for four and five persons on the restaurant principle. Convenient to this saloon a large room has been set apart and suitably furnished and decorated as a nursery for the children.

Launch of S. S. Frankenwald.—Messrs. Furness, Withy & Company, Ltd., launched, on Jan. 20, from Middleton shipyard, Hartlepool, the third of three large passenger steamers for the Hamburg-American Line, the vessels being 366 feet in length, and built to Germanischer Lloyd and Seeberufs Genossenschaft rules for ocean-going passenger steamers. The vessels are intended for the West Indian trade, and will be rigged as two-masted fore and aft schooners, built on the deep frame principle, with two complete steel decks and long bridge, poop and forecastle, with long-boat deck amidships. All weather decks are sheathed with teak. The hull is divided into ten watertight compartments by means of nine watertight bulkheads fitted in accordance with German Board of Trade requirements for ocean passenger steamers. Cellular double bottom extends the full length of the holds and engine and boiler space for water ballast, the fore and after peaks being also available as trimming tanks. There are five large cargo hatches worked by eleven powerful steam winches, the latter supplied and fitted by the builders, and seventeen derricks; two of these are capable of lifting 15 tons each. These steamers will be lighted throughout by electricity, and the installations, consisting of two fine dynamos each, will be supplied and fitted by the builders. The 'tween decks are arranged to carry 608 third-class passengers, and fitted with Hoskins' patent Neptune berths, whilst thirty first-class passengers will be accommodated in the bridge. A fine dining saloon, smoking saloon and ladies' room are arranged on the bridge deck. The poop is fitted up as a hospital. The crew are berthed in the forecastle, while the captain and officers are berthed in large deckhouse on the boat deck. Engineers' berths, stewards', stewardesses', butchers' shop, bakers' shop, galley, etc., are arranged on the bridge deck. Insulated storerooms are fitted up in the after hold and 'tween deck, and refrigerating plant will be supplied in each case by J. & E. Hall, Ltd. Triple-expansion engines are being supplied and fitted by Messrs. Richardsons, Westgarth & Company, Ltd., Hartlepool, with cylinders 25½-inch, 43-inch, 72-inch by 48-inch stroke, steam being generated in three single-ended boilers 14 feet by 12 inches long, working at a pressure of 200 pounds per square inch. Howden's system of forced draft will be fitted in connection with the boilers.

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Salesmen with an established trade with marine engineers and oil, grease, packing, etc., can learn of an exceptionally profitable side line by addressing X. Y. Z., care of International Marine Engineering.

Hastie's Steering Gears.—Messrs. John Hastie & Co., Ltd., Kilblain Engine Works, Greenock, have been very fully employed during 1907, and their recently extended workshops have been taxed to the utmost capacity. Amongst other important contracts completed during the year, were the steam-steering gear for the new Royal yacht *Alexandra*, and for the Imperial Russian cruiser *Rurik*. The steering gear of the *Rurik* possessed many novel features, and in addition to steam and hand-steering gear a complete set of electrical steering gear was fitted. Steam-steering gear was also fitted during the year to new passenger steamers for most of the Glasgow owners, including the Anchor Line, Allan Line, City Line, P. Henderson & Company, Messrs. A. A. Laird & Company and others. In addition to the vessels for local owners steering gear has been fitted to new steamers for many owners in England and on the Continent. These include vessels which have been built for the Canadian Pacific Railway, Compagnie Générale Transatlantique, Hamburg-America Company, Brazilian Lloyds, Lloyd Sabaudo, Prince Line, Shaw Savil & Albion Company, Pacific Steam Navigation Company, Fratelli Cosulich, Trieste, Japanese Imperial State Railways and many others.

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TRADE PUBLICATIONS.

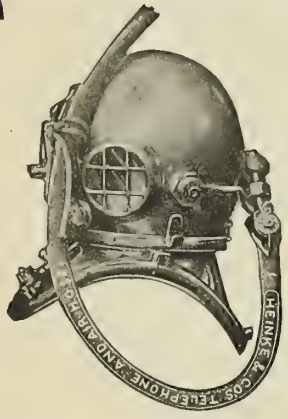
AMERICA

The Koerting oil firing system for marine or stationary boilers and locomotives is described and illustrated in a catalogue published by the Schutte & Koerting Company, Twelfth and Thompson streets, Philadelphia. "This system comprises the following: The oil flows from the supply tank to a central pumping outfit, where it passes through a primary heater and flows through filters to a pressure pump. The pump passes it under pressure of 30 to 75 pounds (according to the evaporation required), and passes it through a second heater to the Koerting centrifugal spray nozzles directly in front of the boilers. In this second heater it is heated to 220 or 260 degrees F., which means the oil is heated above the boiling or flash point at atmospheric pressure. Evaporation of the oil is prevented by the pressure on the pumps being kept in accordance with the temperature. However, the moment the oil leaves the spray nozzles under the boiler, the pressure is removed from the oil, and the oil flashes into the finest atoms. This physical action is assisted by the mechanical atomizing of the centrifugal spray nozzles, resulting in the perfect and intimate mixture with the air. This gives the desired result of a smokeless and perfect combustion. First, as regards to material: To figure this for the different sections of the country it may be stated that 1 pound of fuel oil does the same work, in evaporating the water in the boilers, as 1.4 pounds of coal, or 4.2 barrels of fuel oil are equal to 1 ton of coal. Second, the saving in labor: Such saving is obvious, as one man only is necessary in the boiler room. The conveying of fuel to the boiler is accomplished by the system. The larger the plant the greater the saving. Third, space: 1,600 pounds of fuel oil is equivalent in heating value to 1 ton, or 2,240 pounds, of coal. The application of the centrifugal sprayer obviates the defects of the steam-jet system, and secures several important advantages. In spraying petroleum, raw naphtha, mazut, astatki, etc., by means of steam jets, a certain portion of the heating value of the fuel is lost, as the steam has to be raised to the furnace temperature, and, being used for spraying, is lost to the boiler. In the case of marine boilers, this loss is especially disadvantageous, as the steam used for spraying represents a loss of water, which has to be replaced. Such loss is often 100 percent or even more than the weight of oil sprayed."

"Friction" is the title of a booklet published by the Keystone Lubricating Company, Philadelphia, Pa. "In this book we have given our best thoughts towards giving a clear, accurate resumé of the subject of friction or lost work." A free copy will be sent to any of our readers upon application.

Steam specialties of many kinds are described in circulars issued by Crane Company, Chicago, Ill., any or all of which will be sent free to our readers upon application to Crane Company. Among the circulars published are those describing steam and oil separators; flanged pipe joints; Craneweld extra heavy flanged pipe joints; reversible stop and waste cocks; non-return and direct-return steam traps; expansion joints; sediment traps; pipe joints; renewable spring disc brass valves; combination back pressure and exhaust relief valves; Klingerit packings for use as gaskets, especially when superheated steam is used; pipe dies; automatic and emergency valves; globe and angle valves; muffler attachments for pop safety valves; steam traps; pipe machines, etc.

"Old Reliable Marine Composition for Steel and Iron Ship Bottoms" is the title of a pamphlet issued by the Griscom-Spencer Company, 90 West street, New York City. "These compositions are an improvement upon those formerly manufactured by Samuel Williams, now deceased, who made highly reputable compounds, which in his day were well liked, and met with unqualified and universal indorsement for their virtue and reliability. Mr. Joseph A. Williams, the only surviving son of Samuel Williams, continued the manufacture of these compounds until his decease. Old Reliable compositions have always given satisfaction and find continued favor with shipowners and shipmasters, as numerous certificates of approval in our possession will testify. We will fully warrant these compositions to be as represented and to fulfill all claims made for them for virtue and efficiency. No. 1, intended for the first application, will preserve the plates from corrosion and pitting; will adhere tenaciously and form a coating ample and durable, which will not crack, flake or peel off. No. 2, intended for the finishing coat, will prevent fouling by barnacles, grass and other submarine growths. In these compositions nothing but the highest grade of chemically pure materials is used."



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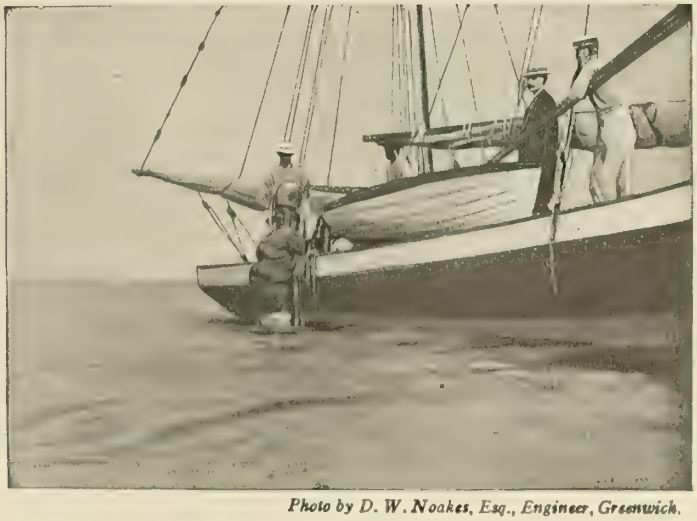

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Lunkenheimer steam specialties are the subject of a great number of catalogues and booklets issued by the Lunkenheimer Company, Cincinnati, Ohio, any one of which will be sent free upon application to readers mentioning this magazine. Among the catalogues this company issues are those with the following titles: "Generator Valves," "Safety Valves," "Oil Cups," "Exhaust Pressure Regulators," "Safety Water Columns," "Automatic Injectors," "Automatic Cylinder Cocks," "Mechanical Oil Pumps," "Blow-Off Valves," "Specialties for Traction or Portable Engines and Boilers," "Regrinding Valves," "Sand Blast and Air Nozzles," "Grease Cups for Cylinder Lubricators," "Oiling Devices," "Whistles," "Ground Key Work with Special Keys," "H-W Cross-Head Pin Oiler," "Specialties for Automobiles and Motor Boats."

Portable electric drills and grinders for direct and alternating currents are described in illustrated catalogue No. 6 issued by the Hisey-Wolf Machine Company, Cincinnati, Ohio. "Portable electric drills are now the order of the day and are pre-eminent in all classes of manufacturing where modern methods are employed. We devote our entire time, attention and ideas to the building and perfecting of them. These tools are all self-contained, and being light in weight can be carried to the work anywhere. The driving power is obtained by connecting the plug with any incandescent lamp socket. The cost of operation is slight, and they will be found economical and efficient in every way. We build our own motors and make all parts pertaining to our machines. Every detail in material and workmanship is carefully considered, and each tool is especially designed for the work it is to do. Our motors are simple in construction, with no complicated parts to get out of order. Durability, over-load capacity and freedom from sparking are our essential points. Each tool is thoroughly tested by actual use before leaving our shops, therefore we can guarantee them in every way. We are the originators and largest builders of portable electric tools in the world. Our patented features prohibit others copying the exclusive and essential parts. Our machines are adopted as standard by the largest plants everywhere. Duplicate orders from well-pleased customers are our best recommendations. Some of these concerns have as many as fifty of our tools in use and duplicate constantly."

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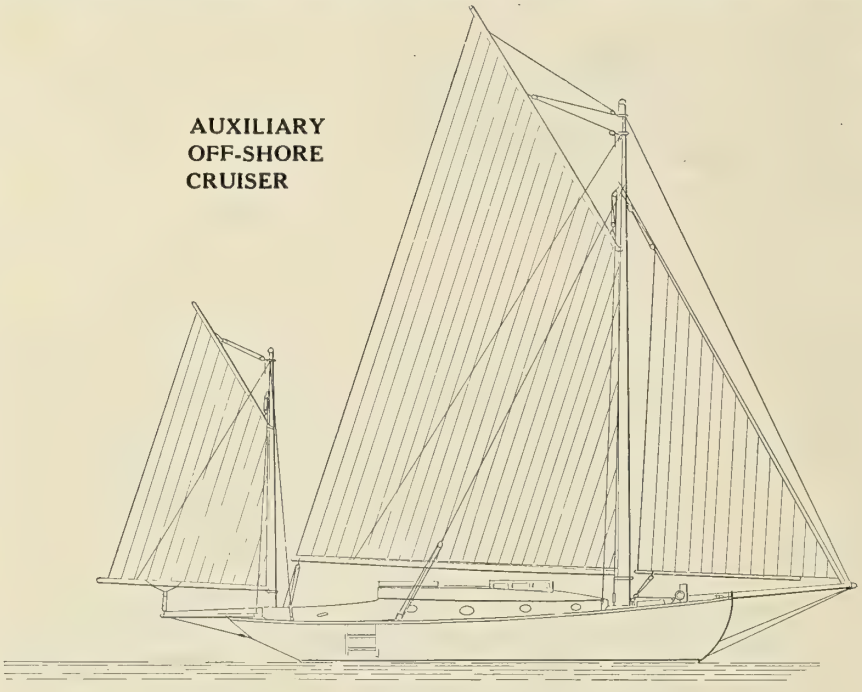

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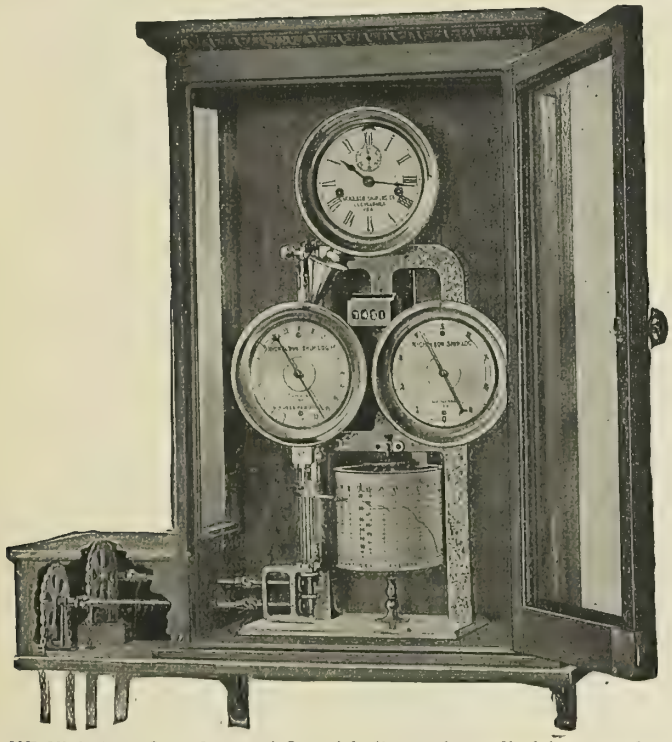


THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations, viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge, or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.
CLEVELAND, OHIO, U. S. A.
Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

Flexible steel armored hose for steam or compressed air is the subject of Bulletin No. 507, published by the Sprague Electric Company, 527 West Thirty-Fourth street, New York City. This catalogue states that users of hose have been confronted by the inability to secure a hose which will meet the exacting requirements of steam service, and that flexible steel armored hose approaches the solution of this problem more nearly than any form of protected or unprotected hose on the market. The armor fits the hose so closely as to absolutely preclude expansion, and with this possibility eliminated the hose gains in strength and durability in proportion to the retaining strength of the armor. The manufacturer states that a 1-inch three-ply rubber hose equipped with this armor will withstand a hydraulic pressure of 2,000 pounds.

A practical demonstration of the virtues of Albany Grease is furnished in a mailing card received from Messrs. Adam Cook's Sons, 313 West street, New York City, the makers. The trouble and uncleanliness resulting from the use of some greases is shown in a sketch on the reverse side of the card, of an engineer wrestling with the problem of the burning out of a bearing and drippings from hangers with the comment, "Nothing worse I can imagine." This is in marked contrast to the pictured contentment of the smiling engineer, seen when the card is unfolded; who, supplied with Albany Grease, points to the smooth running shaft above him and exclaims, "Nothing easier I see!" thus voicing the mystic letters, "OEZRIC," which appear on the trademark of Adam Cook's Sons. There are also some interesting half-tone engravings showing how Albany Grease has successfully replaced other lubricants that could not keep bearings cool even with the addition of ice and water in the plant of the Equitable Life Assurance Society, 120 Broadway, together with a letter from George Gordon, chief engineer, testifying to the good results which have followed. There are also views of an ingenious hand-made spindle Albany Grease cup, as used on the 500-horsepower Corliss engine in the same plant.

Pop safety valves for all kinds of steam boilers are described and illustrated in circular No. 30 published by Crane Company, Chicago, Ill. These valves are suitable for any pressure up to 250 pounds. They are approved by the United States Board of Supervising Inspectors of steam vessels and passed by all local inspectors. "The construction of these valves embodies a self-adjusting feature automatically regulating the 'pop' of valve, thereby permitting moderate changes in the setting pressures and maintaining the least waste of steam between the opening and closing points. In all 'pop' safety valves it is necessary to have a 'pop' or holding chamber into which the steam expands when main valve opens, thereby creating an additional lifting force proportionate to this increased area and sufficient to compensate for the increased tension or force exerted by the main spring, due to its further compression caused by the opening of the main valve; operating on this principle the main valve is held open until the boiler pressure is relieved. Means must now be provided to relieve the pop chamber of pressure in order to allow the main valve to close promptly and easily. This is accomplished by our self-adjusting auxiliary valve and spring, which operate entirely independent of the main valve and main spring. The steam in pop chamber finds a passage through holes or ports into an annular space provided in the auxiliary valve or disc, and by reason of the light auxiliary spring this pressure lifts the auxiliary valve, allowing the steam in pop chamber to gradually escape, thus supplying a cushion or balancing medium and affording the easiest possible action in the closing of main valve without chattering or hammering. This feature is embodied in no other make of valve, and unlike other pop valves, in changing set pressures within reasonable limits, nothing further is to be done but simply turn down or out (for a higher or lower pressure) on the screw-pressure plug at top of valve. Our encased spring valves are constructed with a casing or chamber enclosing both springs, protecting them against the action of the steam, particularly high pressure, which, blowing with great force and velocity throughout all parts of the valve before reaching the atmosphere, would otherwise have a tendency to disarrange the springs and other parts operating in conjunction therewith. Encased spring valves are especially useful on water-tube and marine boilers. They are, in fact, necessary where a number of valves are connected to one main exhaust or discharge pipe, as the encased spring chamber extending over a greater portion of the top surface of the valve prevents any retarding action of the steam, due to back pressure, which might be caused by one or more valves opening slightly in advance of another, in having any material effect on the free opening of the other valves."

Marine packings are described and illustrated in a handsome catalogue of 80 pages published by the Crandall Packing Company, Palmyra, N. Y. This company makes packings of all kinds for steam, ammonia and hydraulic purposes. For special work and requirements, and when in doubt as to what style or grade will give the best results, the company solicits correspondence from engineers, and after receiving full particulars with the exact measurements, it will make up the packing and ship subject to approval.

Stowe reverse gears are described in a catalogue just issued by the Stowe Manufacturing Company, Wilmington, Del. "Here are some of the good points of the Stowe gear: They are compact and connect close to engine bed, thus saving the space occupied by couplings and stub shaft in other gears. They are self-contained and require but a few minutes' work to attach to any engine, it being unnecessary to dismantle them in order to make the connections. They are equipped with forward and reverse thrust bearing, which is in such a position that it removes all thrust and friction from both clutch and engine on forward and reverse movements. It is cylindrical in form, turned and polished, and has no unsightly projections or operating mechanism above body of drum."

Influence of Ash and Sulphur Upon Boiler Efficiency.—In a recent paper, Mr. G. Bailey, chief of the coal department of Arthur D. Little's laboratory, Boston, points out the influence of ash in coal upon boiler efficiency, and shows that it depends not altogether upon the amount of ash but also upon the nature of it. "Ash from certain coals," he says, "has a very high fusing temperature. It is almost impossible to make any large clinker from it, no matter how much fire you have, while other coals at a comparatively low temperature (the fire not being forced) will give a very bad clinker. This has frequently been blamed on the sulphur. The sulphur itself should not take the blame, because it is a question of the fusibility of the ash. Tar will melt at one temperature, pitch at another, lead at another, and iron at another, depending upon the fusing points of those different compounds or elements. Ash in coal is a good deal the same. It is composed of practically the same things as clay. You take an ordinary paving brick and line your furnace with it, and it doesn't last very long, but the best of fire-clay will withstand a very intense heat. The ash in coal can be compared almost directly to the clay of which brick is made. Some of it contains considerable iron and other fluxes, which causes it to melt at a very low temperature, and gives a great deal of trouble in burning grates, stopping the air supply, necessitating frequent cleaning of the fire, which condition cannot help but result in a lower boiler efficiency. Every time you clean the fire you lose several percent. Your boiler is cooled, and in order to obtain the previous furnace conditions, several hundred pounds of coal are required. Also, with a higher ash, whether clinking or not, the fire must be cleaned more frequently, and the percentage of loss in the coke that drops through your grate is larger in proportion to the working of the fire and the number of times that it is cleaned. Mr. Abbott made some tests not long ago in which he showed with the same coal that as the ash was increased to 40 percent the boiler efficiency was reduced to zero. The United States Geological Survey made some tests at St. Louis, in which they burned some of the refuse resulting from the washing of coal. I do not have the exact figures at hand, but the ash in that refuse ran 50 odd percent, and the boiler efficiency obtained was above 40 percent. Sulphur in coal is detrimental for two reasons. It is generally combined with iron, and the iron causes the clinker. The sulphur also, being liberated as the coal is burned, undoubtedly has some effect on the boiler tubes, the stack (if an iron stack is used) and the other iron work, but just to what extent this occurs I have no specific data. In a case to my knowledge, where horizontal return tubular boilers are used at mines which produce coal varying from 0.9 to 4.00 sulphur, there was no practical difference noted in the condition of the boilers. In another case, where low-sulphur coal was burned, an analysis of soot and other accumulation on the outside of the tubes of a B. & W. boiler showed nearly 25 percent of free sulphuric acid and sulphates of iron, showing that the tubes had been attacked more or less by the sulphur."

You Can't Blow Off the Bonnet Rigging of the

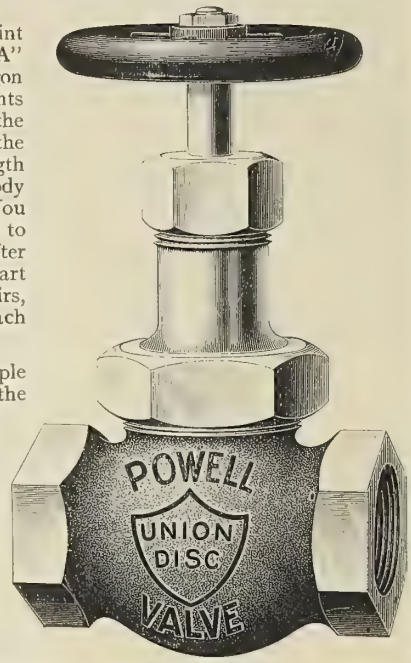
Powell Union Composite Disc Valve

The patent ground joint connection between "A" and "N" and hexagon swivel nut "a" prevents that. The higher the pressure the tighter the grip—plenty of strength and metal where the body might be weak. You don't need red lead to make it steam tight after you have taken it apart for inspection or repairs, the steam doesn't reach the threads.

These are only a couple of the good points in the Powell Union Disc Valve, our booklet tells them all—want it?

Specify Powell to your jobber, and insist on getting what you specify.

Look for the Name—



THE WM. POWELL CO.

Cincinnati, Ohio

New York, 254 Canal Street

Philadelphia—518 Arch Street
Boston—239-245 Causeway Street

HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

For Sale.—*London Engineering* for 1907, bound, and 1905 and 1906 unbound. W. T. Dimm, 2904 West avenue, Newport News, Va.

The "S-C" Regulator Company, Fostoria, Ohio, is distributing a folder which states that the "S-C" regulator protects boilers; "keeps the water always at the same level; creates a larger steam reservoir, thus furnishing dry steam, which gives steady power; doing more and better work, while it saves fuel; no floats; no needle valves; no small openings; no exhaust, no scale, no corrosion, only open the steam line to pump, and the regulator will do all the rest. in operation there is absolutely no loss by either condensation or discharge. Works on a pressure of 10 pounds, and it is tested to 150 pounds pressure, giving a safety margin of 1,500 percent. There is a great need for a reliable, accurate regulator for boilers. That need has been fully met."

MACHINISTS, TAKE NOTICE. Purchase Castings and Blue Prints of High Grade Gasolene Motor of World Wide Reputation, and start a profitable business. Write to-day.

F. P. CONRAD, 242 Freeport Street, Harrison Square, BOSTON, MASS.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

The "New Yankee" drill grinders and other tools are described and illustrated in catalogue No. 93 published by Wilmarth & Morman Company, Grand Rapids, Mich. In this catalogue the manufacturer states: "As evidence of the acknowledged superiority of the New Yankee drill grinder we submit the fact that we are the largest makers of drill grinders in the world. Their popularity is due to their simplicity, accuracy and efficiency; and also to the fact that they are built in a variety of styles, sizes and combinations which will provide a machine adapted to the most peculiar shop conditions. One of the principal points in favor of the New Yankee drill grinder is found in its simplicity of construction and ease of operation. In this machine the grinding of a drill has been practically reduced to lay it in the holder and grind it, there being an entire absence of time-consuming gage jaw adjustments. The holder is never adjusted except to follow the wear of the wheel. This feature alone is sufficient to make the New Yankee the most popular drill grinder, if it had no other points in its favor. A machine that does not save both in time and trouble will not be used. Rather than make a number of adjustments the workmen will throw the holder aside and grind by hand, regardless of all the inaccuracies of this method. This is especially true of the gage-jaw type of machine. Because of the simplicity of the New Yankee drill grinder there is no excuse for grinding by hand. Drills ground on it have that gradual increase in clearance from periphery to center that is so essential. In use, drills ground on our machines stand a high rate of speed, require a light feed pressure, produce clean-cut chips, make true, straight holes and run a long time between grindings, and breakage is reduced to the minimum. The adjustment for clearance, which is quickly made, makes it possible for drills to be ground to suit the work in hand, and at any setting the same clearance is ground on all sizes of drills. In buying a drill grinder the error most commonly made is the purchase of a large machine without giving the matter of convenient handling of small drills due consideration. In this connection it is well to remember that our style A will grind a ⅛-inch drill (and is tested on a smaller size), just as a 36-inch lathe may be used to turn a 1-inch shaft; but, in neither case can the work be so conveniently done as with a smaller machine. While the small machine is needed for the convenient handling of the small drills which are most frequently ground, it is imperative that a large capacity shall be available for the large drills. In the New Yankee drill grinder provision is made for supplying both needs in one machine by furnishing, when desired, an extra drill holder interchangeable with the regular one. It is wise to have a large machine, but for maximum efficiency it should be equipped with an extra drill holder of smaller size. As a matter of fact, the smaller one will doubtless be used the most. The extra cost is a mere trifle. As to the choice between a dry and wet grinder, the latter is growing in favor. Such a machine can be used dry as well as wet, and, while requiring some care to prevent rusting, this is in nearly all cases more than repaid by the increase in the work gotten out of the drills."

Shaking and dumping grates are illustrated in a booklet published by the Cyclone Grate Bar Company, White building, Buffalo, N. Y.

Safety watertube boilers are described and illustrated in catalogue No. 60 published by the Murray Iron Works, Burlington, Ia.

"Reactions" is the title of a quarterly publication issued by the Goldschmidt Thermit Company, 90 West street, New York, "devoted to the science of aluminothermics."

High-grade marine engines for cruising, work and speed boats are described in an illustrated catalogue mailed by Sterling Engine Company, 1250 Niagara street, Buffalo, N. Y.

Marine engines, reverse gears and reversible propellers are described and illustrated in a booklet published by the Anderson Engine Company, Shelbyville, Ill.

Graphite cup greases, a description of their character, uses and special advantages is published in pamphlet form by the Joseph Dixon Crucible Company, Jersey City, N. J.

Instruction book No. 226 regarding round type motors and generators has been issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York.

Bulletin No. 153 of the engineering series issued by the B. F. Sturtevant Company, Hyde Park, Mass., is devoted to the history of ventilating and blowing fans. This or any of the other bulletins issued by the Sturtevant Company will be sent free to any of our readers upon application.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., East 11th Street and 3d Avenue, Oakland
BOSTON, MASS., 232 Summer Street
BALTIMORE, MD., 114 W. Baltimore Street
BUFFALO, N. Y., 600 Prudential Building
PITTSBURGH, PA., 913-915 Liberty Avenue
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

The 1908 catalogue of standard gears has just been issued by the Boston Gear Works, Norfolk Downs, Mass.

The annual report of the Chicago Pneumatic Tool Company, made Dec. 31, 1907, showed a profit for the year of $848,007.23, dividends amounting to $190,063.49 were paid, and a balance credited to surplus account of $314,219.86.

"The only plug with two distinct, positive and simultaneous sparks inside the cylinders, insuring an intensified spark, quick and positive ignition," is the claim made for the plug made by the Two Spot Manufacturing Company, Canastota, N. Y.

Attention is called to "Profit and Pleasure from Good Packings," in a circular issued by Randolph Brandt, 38 Cortlandt street, New York City, manufacturer of Zena and Selden packings.

"Just a Few of the Many Good Things Said About Lackawanna Valveless Motors by People who Use Them" is the title of a pamphlet published by the Lackawanna Manufacturing Company, Newburgh, N. Y.

"A few good tools attractively priced" by Montgomery & Company, 105 Fulton street, New York, are described in stock list form by the above company. Among the tools, etc., mentioned are Scotch gage glasses, pressure and vacuum gages, oil filters, punches, bevels, squares, protractors, blowers etc.

"Summer Days" is the title of an attractive booklet published by the Truscott Boat Manufacturing Company, St. Joseph, Mich. This booklet is devoted to telling in story form the advantages of Truscott launches and attachments.

The Racine Boat Manufacturing Company, Muskegon, Mich., is distributing folders illustrating a large number of this company's boats and launches of all kinds, such as family launches, motor boats, cabin boats, rowboats, canoes, ocean-going cruisers, power tugs, etc.

"Elco" motor boats are illustrated and described by the Electric Launch Company, Bayonne, N. J., in one of the handsomest catalogues we have recently seen. "The electric launch, an ideal pleasure boat," is the special subject of this catalogue, and any of our readers interested in this type of boat should not fail to send for a free copy.

TRADE PUBLICATIONS

GREAT BRITAIN

"Effective Lubrication Means Speed" is the title of a booklet just issued by Richard Klinger & Company, 66 Fenchurch street, London, E. C.

A patent steam pump without rods, pistons, glands, leathers or levers is illustrated in circulars published by Pulsometer Engineering Company, Ltd., 61 Queen Victoria street, London, E. C.

Arnold Goodwin & Son, Ltd., Sumner street, Southwark Bridge, London, S. E., are issuing circulars announcing that they undertake all kinds of machinery repairs and make a specialty of large steam engine and condenser repairs.

A. B. Collis, Ltd., Bitterne Park, Southampton, has recently acquired the business of the Liquid Fuel Engineering Company, of Poole, which it is running in conjunction with the old business of steam and motor launch building.

Two-cycle gas engines, blast furnace cleaning plants, Koerting gas engines, Koerting gas-blowing engines, a floating dock and an 80-ton floating shear legs are a few of the engines and machinery illustrated and described in many circulars published by Willock, Reid & Company, Ltd., 109 Hope street, Glasgow.

"Some Useful Notes on the Installation and Running of Marine Motors," by Ellis A. D. Kish, is a booklet somewhat different from ordinary trade literature, published by the Ailsa Craig Motor Company, Strand-on-the-Green, Chiswick, London, W., a free copy of which will be sent to any of our readers upon application.

"Electric Light and Power Installations" is the title of a handsomely illustrated book of 92 pages published by J. H. Holmes & Company, Newcastle-on-Tyne. This firm has furnished the electric light for many well-known steamships and yachts during the past twenty-two years. Among them are the royal yachts of Spain, Portugal and Siam, the Russian steamship *Smolensk,* the steamship *Kent,* and many others.

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC

A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

All Communications to
ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

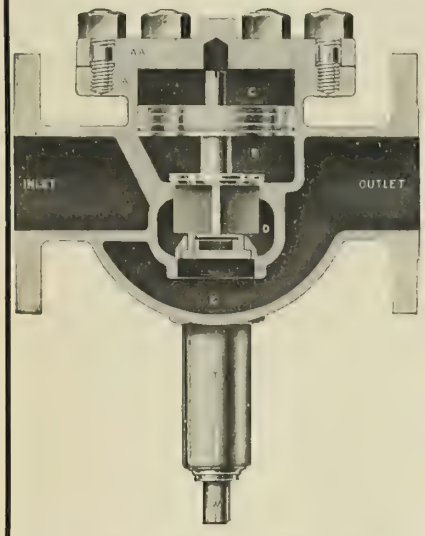
J. & E. HALL Ltd.
(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)
REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

UNION CASTLE MAIL S. S. Co.	53	P. & O. STEAM NAV. Co.	33	HOULDER LINE, Ltd.	13
HAMBURG AMERICAN LINE	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	46	CHARGEURS REUNIS	22	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	40	TYSER LINE	13	CANADIAN PACIFIC Ry.	12

etc, etc.

Collin Regulating Valve
FOR STEAM



Write for Descriptive Booklet "M-B"

Reduces and maintains any desired service pressure regardless of the variation of initial pressure, and differs from *all other valves* in the following points:

The Main Piston Valve will not become cut. In operation, it floats, balanced by pressure; its action is not restricted by a spring.

The Auxiliary Valve, which controls the Main Valve, is out of the path of initial steam, and never catches scale or chips.

The Valves can be removed without disturbing the Diaphragm. The Diaphragm can be removed while the Valve is under pressure.

THE OHIO BRASS COMPANY
MANSFIELD, OHIO, U. S. A.

THE PHOSPHOR— —BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand." Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1.
Cheaper than any Babbitt's, and equal to best Magnolia Metal.

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

Telegraphic Address: "PHOSBRONZE, LONDON." Telephone No.: 557, HOP.

Cera lamps and stoves for yachts are described in a price list issued by Cera Light Company, Ltd., 56 Oswald street, Glasgow.

Worm gear pulley blocks are described in illustrated catalogue issued by Herbert, Morris & Bastert, Ltd., Loughbrough, Leicester.

Motors and dynamos are illustrated and described in a catalogue just published by J. H. Holmes & Company, Newcastle-on-Tyne.

Corrugated and ringed filters for marine and land boilers are described in illustrated circulars issued by Willock, Reid & Company, Ltd., 109 Hope street, Glasgow.

BUSINESS NOTES

AMERICA

The Anderson Engine Company has aranged with the New York Motor Boat Company, City Island, N. Y., for the sale of its marine engines in New York and vicinity.

The Falls Hollow Stay Bolt Company, Cuyahoga Falls, Ohio, writes us that this company's hollow iron will be used in thirty locomotives for the Paris & Orleans Railroad of France. These engines are now being built by the American Locomotive Company.

The United Gas Machinery Company has been incorporated in New York and has taken offices at 114 Liberty street, New York City. This concern has taken over the business formerly conducted by T. F. Fitzsimmons, at 100 Broadway, and will manufacture a complete line of gas generators for making producer gas for gas engines.

The contract for the electric turret-turning gear of the United States ship *Delaware,* now under construction at Newport News, has been awarded to the Cutler-Hammer Manufacturing Company, Milwaukee, Wis. This company designed and built the electric turret-turning gear installed in the port after turret of the *Indiana,* the crew of which holds the world's record for markmanship—ten shots in 2½ minutes, all hits. Every modern war vessel is equipped with a complete electrical plant, the specifications of some of the newer battleships calling for generators having a combined output of 800 kilowatts. In addition to illumination, wireless telegraphy and interior signal systems, electricity is used on shipboard in connection with the refrigerating plant, ventilating fans, forced draft blowers, and for operating ammunition hoists, boat cranes, deck winches, etc.

A Valuable Marine Glue.—Jeffery's patent marine glue, for which L. W. Ferdinand & Company, 201 South street, Boston, Mass., are importers and sole agents for the United States and Canada, is guaranteed to be waterproof. It is said that its peculiar properties are those of flexibility and durability, and that although it becomes soft and pliant under heat, yet it still retains its adhesion to timber, fiber, etc., and is clean and insoluble in water. It is largely used by manufacturers of knock-down boats, and also used in combination with canvas for decks and canvas boats and canoes, and in combination with calico for sponsors. For application to air-tight compartments of lifeboats, etc., the glue is made of a softer quality than that used by batteries and yacht decks. For application to planking of boats the glue is made expressly for use in combination with calico, between the double planking of diagonally built rowboats and motor boats.

"BUREAU VERITAS"

International Register for the Building and Classification of Steel, Iron, Wood and Composite Vessels.

Applications are invited for the position of ***Resident Surveyor*** to the above named Society for the Port and District of Philadelphia, Pa.

Candidates must possess practical experience as Shipbuilders and Marine Engineers, and should not be less than 28 nor more than 45 years of age.

For particulars, apply in writing, including copies of references for the Committee's consideration, to:

H. WILKINSON
CHIEF SURVEYOR, BUREAU VERITAS (U. S. A.)
17 STATE STREET NEW YORK CITY

"THE ART OF NAVAL ARCHITECTURE as applied to the design of large freighters, such as are now used in the lake trade, has reached a very high degree of efficiency in most details, and the design of both hull and machinery has been practically standardized, so that the purchaser has merely to say to the shipbuilder: build a 9,000-ton boat, and he will get a first-class carrier built on the same lines as all the rest of the boats, and he feels that since they have given satisfactory service he may be satisfied with the same character of boat. There is, however, one unit of the steam and boiler plant that has been very much neglected, and that is the feed-water heater. The present type of heater used, which is a straight tube heater with steam within the coils and water surrounding them, is one of the oldest types and is not an efficient heater. The only possible reason why it should have survived so long is the fact that the general efficiency of the lake boats is so very high that this one point has been allowed to slip by unnoticed. However, it is surprising when it is realized that the feed-water heater is *per se* a fuel economizer, being at the same time one of the deposit plant units of machinery in principle and the most effective in economy. It is, of course, a well-known fact that for every 10 degrees that the feed water is heated before it enters the boiler there is a saving in the amount of fuel required to be burned under the boiler of about 1 per cent. In ocean practice it is customary to use the waste heat of the exhaust from the auxiliaries under a small back pressure to raise the temperature of the boiler feed to sometimes as high as 230 degrees when the Reilly multicoil feed-water heater is used. The effect of this high temperature is not only to save fuel but also to save the wear and tear on the boiler, due to the decreased temperature strains upon the shell resulting from a jet of cold water striking it. In the lake trade the amount of exhaust steam furnished by the auxiliary units is not sufficient of itself to raise the temperature of the feed as high as is obtained in ocean practice, but with an efficient feed-water heater, such as the Reilly multicoil heater, all of the auxiliary exhaust steam may be condensed, and consequently utilized. The lake type of straight tube heater is inefficient for the following reasons: In the first place, after a few years' service it generally scales up very badly, the result of which is to cut down useful tube surface available for heating the water. In the second place the circulation of the water through the heater is at all times very ineffective, for the reason that there is and can be no additional way of baffling the water in its course through the heater so as to keep it thoroughly agitated. The result of careful experiments made by the Griscom-Spencer Company, 90 West street, New York, has proved the benefit of proper agitation of the water in its course through the heater, and this company has utilized this principle of increasing the efficiency of heating surface by vigorously agitating the water in the design of the heater in which the water is fed through the small coils at a high velocity, with the result that the efficiency of heating surface in the Reilly heater is from two to three or four times that of the lake type straight tube, and this efficiency is maintained after long service, because the adherence of scale to the coils is impossible; not so with the straight tube heater, however, because, in the first place, assuming that the velocity of flow through the feed pipe is about 150 feet per minute, the instant that this water enters the heater the cross-section of the area of flow is immediately increased from 30 to 100 tons, so that the velocity is decreased to five or less feet per minute. The effect is, of course, to prevent any effective baffling, no matter what kind of baffle plates might be inserted between the tubes. The result is that in all probability a very small part of the tube-heating surface is actually effective, and that the water surrounding the rest of the surface merely rests stagnant and is heated to the temperature of the steam, but since water itself is a very bad conductor of heat it merely acts as a blanket over that part of the heating surface. In addition, the very slow progress of water through the heater facilitates the deposit of scale, since the carbonates precipitated from solution start to precipitate at a temperature of about 180 degrees; and if there is no current of water to carry this scale through to a suitable depositing chamber it merely settles entirely on the tubes and solidifies. This subject has been studied with considerable care by the Griscom-Spencer Company, and it is preparing to push the use of the Reilly heaters in the lake trade where they are so much needed, and it is to be hoped and expected that their success in that field will be just as marked as it has been in the ocean trade, where Reilly heaters are used not only in commercial practice but in ships of the United States Revenue Cutter Service, United States Lighthouse Board and by the Department of Commerce and Labor."

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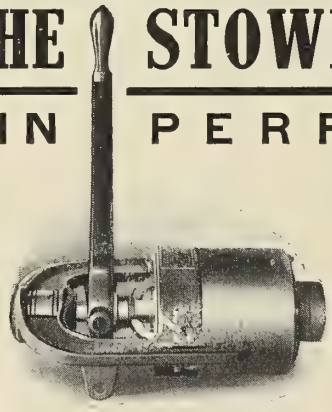
ALWAYS IN PERFECT BALANCE

Simplicity, Strength
Durability, No Chains
No Couplings
No Projections
Easy to Install
Fits in Close Places



Drum Oil Tight, Turned and Polished
Gears of Steel, Bronzed, Bushed and Hardened
Adjustments Easy of Access

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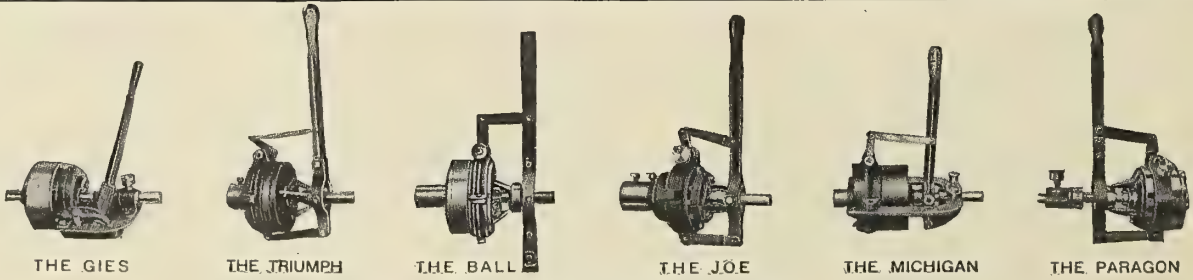

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MARINE
GAS PRODUCERS
17 to 100 H. P.

They use anthracite pea coal as fuel.

These PRODUCERS are light in weight, occupy small space and head room, are reasonable in first cost, and show great economy in operation over either steam or gasoline.

They can be used with almost any make of four-cycle gasoline engine, by making some slight changes in the engine.

They may be installed, in connection with engines already in use, at some sacrifice of capacity.

We do not build gas engines, and are not interested in any particular make. We will work with and assist any builder of MARINE GAS ENGINES to adapt his engine to PRODUCER GAS.

PLANTS IN OPERATION can be seen at any time by parties interested

THE MARINE GAS PRODUCER CO.
941 Exchange Building, BOSTON, MASS.

THE SMOOTH-ON MANUFACTURING COMPANY, 572 Communipaw avenue, Jersey City, N. J., has opened offices at 61 North Jefferson street, Chicago, Ill., 20 Sacramento street, San Francisco, Cal., and 8 White street, Moorfields, London, E. C.

FREE—A LARGE CAN OF GREASE, AN ENGINEER'S CAP and a fine brass grease cup. These articles will be sent absolutely without charge to any engineer who will fill out and mail to the Keystone Lubricating Company, Philadelphia, Pa., the coupon appearing in the company's advertisement in this issue of INTERNATIONAL MARINE ENGINEERING on the front cover.

THE MERRILL-STEVENS ENGINEERING COMPANY, Jacksonville, Fla., has changed its name to Merrill-Stevens Company. The company calls attention to its new floating dry dock, the only one on the Atlantic coast south of Newport News. This dock has a lifting capacity of 4,500 tons. The Merrill-Stevens Company also has two marine railways of 1,200 and 500 tons capacity, respectively, and does all kinds of repair jobs. A force of 300 men is kept constantly at work.

TWO SATISFACTORY BOILERS.—The two boilers made by the Almy Water Tube Boiler Company, Providence, R. I., that were installed in the steam yacht *Oneida* in 1895, were taken out in 1905, and have since been used to run the electric light and heating plant of the Lackawanna Railroad at its Christopher street ferry station, New York. We are told that these boilers are in perfect condition and satisfactory in every respect.

VESSELS CLASSED AND RATED by the American Bureau of Shipping, 66 Beaver Street, New York, in the *Record of American and Foreign Shipping:* British screw *Amherst,* American screw *Alliance,* American screw *Wilhelmina,* American screw *Harry Luckenbach,* American screw *Rose City,* American schooner *James W. Elwell,* American schooner *Bertha L. Downs,* American schooner *George P. Hudson,* American schooner *William R. Wilson,* British schooner *Blenheim,* American tern *Hugh Kelly,* American tern *Alice Murphy,* American tern *H. E. Thompson,* American tern *Ralph M. Haywood,* American tern *Benjamin C. Frith,* American tern *Woodward Abrahams,* British tern *Rossignol,* American tern *John Rose,* British barkentine *St. Paul,* and American brig *Severn.*

MARINE SOCIETIES.

AMERICA.

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
St. Nicholas Building, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

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Franklin J. Houghton, Port Richmond, L. I., N. Y.

BUSINESS NOTES

GREAT BRITAIN

MESSRS. J. HOPKINSON & COMPANY, LTD., of Huddersfield, makers of boiler mountings and valves, have opened a showroom and depot at 14 Rue Faidherdge, Lille, which is in charge of Mr. Maurice Goubet.

SHIP BOILERS.—Directions have been given that in ships fitted with Babcock & Wilcox boilers, and also in ships having combined installations of water-tube and cylindrical boilers, experiments are to be made with a view to determining the least amount of lime required to maintain the water in the boilers slightly alkaline. Reports on this point are to be forwarded to the Admiralty from all ships so fitted in three months' time.

THE STURROCK PATENT BRIDGE & ENGINEERING COMPANY, 41 Reform Street, Dundee, in their annual report, state that they have during the year 1907 fitted their patent bridge to 140 steamers, including a considerable number abroad. They have already booked a large number of orders for early delivery this year, and their agents in America and in the Continent are still further booked ahead. The reports from vessels already fitted show uniformly satisfactory results both as to economy and durability.

THE NEW 36-KNOT TORPEDO BOAT DESTROYER, H. M. S. *Swift,* recently launched by Messrs. Cammell, Laird & Company, at Birkenhead, was coated with Holzapfel's anti-corrosive and anti-fouling compositions. Messrs. Holzapfel, besides the *Mauretania,* the fastest merchant vessel, and the *Tartar,* the fastest war vessel so far tried, will also have the *Swift,* which probably will prove faster than the *Tartar.* Considering that the *Tartar* was one of a number of similar vessels, her remarkable speed record reflects the greatest credit on all concerned.

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

Detroit, Mich.—16-24 Woodward Ave.
Chicago, Ill.—202-210 South Water St.
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San Francisco, Cal.—131-153 Kansas St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
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Sole European Depot—Anglo-American Rubber Co., Ltd., 58 Holborn Viaduct, London, E. C.
Paris, France—76 Ave. de la Republique.
Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—Railroad Way & Occidental Ave.
Philadelphia, Pa.—220 South Fifth St.
Louisville, Ky.—111-121 West Main St.
Indianapolis, Ind.—16-18 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1621-1639 17th St.

FOREIGN DEPOTS

Johannesburg, South Africa—2427 Mercantile Building.
Vancouver, B. C.—Carral & Alexander Sts.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.
Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

"Brownhoist" locomotive grab-bucket cranes are described in a pamphlet published by the Brown Hoisting Machinery Company, Cleveland, Ohio. In this pamphlet the company calls attention to its "Brownhoist" locomotive cranes with grab-bucket equipment, as applied to the handling of coal, sand, ore, etc. The illustrations show the cranes handling coal, etc., from stock piles, gondola cars, barges, etc., and the possibilities attending the use of the equipment will be at once apparent. As an inexpensive yet extremely efficient method of coaling locomotives, the "Brownhoist" locomotive crane with "Brownhoist" grab bucket will commend itself to railroad men. "There is nothing experimental about the equipment, as there are hundreds of the machines in successful operation."

Schutte balanced valves, stop and throttle, are described in illustrated catalogue 8, section C, issued by Schutte & Koerting Company, Twelfth and Thompson Streets, Philadelphia, Pa. "The object of balancing the valve is to remove the strain from the spindle, so that its operation can be effected quickly and with least effort. The construction of our balanced valves is based upon the principle of a loose-fitting piston, connected directly with the valve disc, whereby the valve is balanced perfectly. This avoids the usual construction of two parallel seats, which never keep tight. It is practically impossible to keep the distance between the two parallel seats and that of the discs the same; hence they cannot be made tight. The construction of our valve is one seat. The piston above the valve is not tight fitting, and contains a small auxiliary or pilot valve attached to spindle, which opens in advance of the main valve. Thus the pressure above piston and below valve is equalized, and no effort is required to open main valve; at the same time the pilot valve answers the purpose of a by-pass. The several proportions are such that a light over-pressure is maintained above the piston to give the valve, at all times, a closing tendency. This over-pressure should be but slight, and to regulate it at will there is (besides the leak around the piston) a separate steam admission above the piston, regulated by plugs. Depending on the fit of the piston, this plug is opened more or less, or entirely closed when valve is first put in operation, and then locked in that position."

Users of machine tools of any description should write the Niles-Bement-Pond Company, 111 Broadway, New York, mentioning this magazine, and ask to be put on the free mailing list of *The Progress Reporter,* which is issued every few weeks with the object of keeping the public informed as to the new machines and devices constantly being placed on the market by the Niles-Bement-Pond Company and the Pratt & Whitney Company.

The Collin pressure regulating valve, type A, for locomotive service, is described and illustrated in a 12-page catalogue issued by the Ohio Brass Company, Mansfield, Ohio. "The Collin pressure regulator is a distinct advance in the art of pressure regulation and embodies to a greater extent than any other valve the desired qualities of simplicity, accessibility, reliability and uniform regulation. It is correct in theory and works perfectly in practice. It operates upon a principle so simple and yet so complete that many parts essential to other valves are found to be unnecessary in the Collin, giving more perfect operation with fewer organs or parts. No dash pots are necessary, because the principle is such that the valve cushions on closing and is balanced when open. No springs are required to open or close the main valve, because this operation is performed positively by the pressure of the fluid passing through the valve. The simplicity of the valve is very striking, and the accessibility of all the parts even more so. The three elements of the valve are all extremely simple and rugged in their construction, and each readily accessible without disturbing either of the other two. The design is such as to produce great length of life and continuity of service. The body and main and controlling valves are made of government standard composition, as used by the U. S. Navy. The other cast parts are made of heavy steam bronze. The adjusting screw is made of tobin bronze rod and the diaphragm of rolled phosphor bronze. The springs are a high grade of steel heavily nickel plated. We have one of the best equipped valve shops in this country, and have manufactured high-grade reducing valves for years. Our inspection system is very complete, and only perfect parts are assembled in the valve. All the valves are tested under hydrostatic pressure and then delivered to the steam-testing plant, where they are again under service conditions. Any pressure up to 350 pounds per square inch and the capacity of a 120-H. P. water-tube boiler is available for the service test."

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road,
Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

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Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

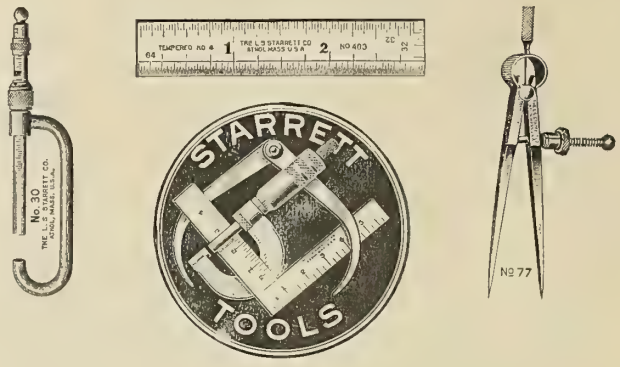
Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Double cylinder reversing engines, steam towing machines, hoisting, docking, winding and hauling engines, steam capstans, dredge winches and other auxiliary ships' machinery are described in an illustrated 44-page catalogue published by the Chase Machine Company, Cleveland, Ohio.

"Grease vs. Oil (Scientifically Compared)."—This is the title of a booklet that every engineer should possess. It contains in a practical and readable form the complete record of a series of lubricant tests conducted recently by the William Cramp & Sons Ship & Engine Building Company. The lubricants tested included three well-known lubricating oils and two prominent greases, one an animal and the other a mineral grease. The relative abilities of each lubricant to reduce friction, the amounts of each consumed and their respective behavior under heavy pressures are all brought out in a plain, common-sense manner that will be thoroughly appreciated by readers who have struggled through pages of ultra-technical stuff on this subject in a vain effort to get at its meaning. This booklet may be obtained free of cost by addressing the Keystone Lubricating Company, Department V., Philadelphia, Pa.

"The Hydraulic Jack" is the title of an illustrated 30-page catalogue issued by Richard Dudgeon, Broome and Columbia Streets, New York City. "The original hydraulic jack was invented by Richard Dudgeon in 1849, and patented by him in 1851, and since that time the modifications and improvements which have been made are mainly in the method of lowering the jack or adapting it to meet special conditions. The hydraulic jack in its usual form is self-contained, and in addition to the force pump and lifting ram is provided with a liquid reservoir and means to control and to return the liquid from the ram chamber to the reservoir in lowering. The lowering of a load sustained by a jack is probably a hydraulic jack's most important advantage, as it is effected at the will of the operator and with no labor on his part save the opening of a valve; whereas in all forms of the ordinary power jack the lowering of the load is scarcely less laborious than raising it. It is, therefore, essential that the lowering mechanism of a hydraulic jack should be simple and effective and under absolute control of the operator, for the losing control of the load may result in an accident or injury to the jack."



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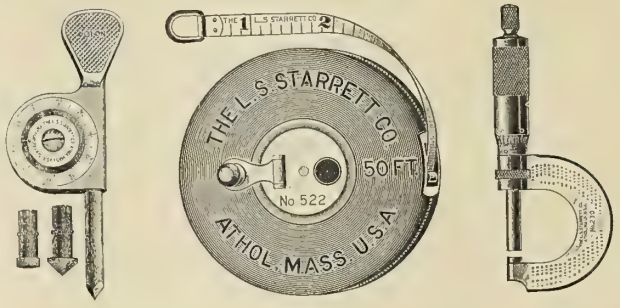

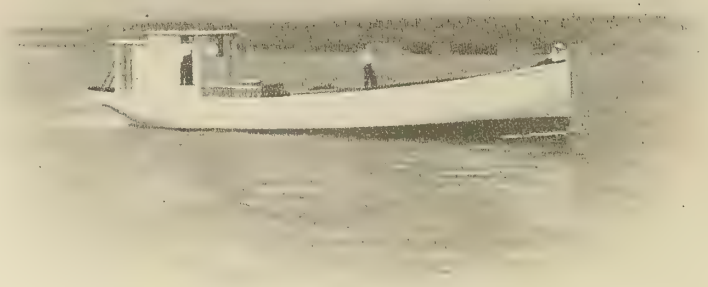

57' Freight Boat with 36 H. P. Slow Speed Gasoline Motor

TASKER & STRAWBRIDGE

NAVAL ARCHITECTS AND MARINE ENGINEERS

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GASOLINE MOTORS AND BOATS OF EVERY DESCRIPTION AND FOR ANY PURPOSE

Will contract for Plans, Machinery, Hull, or Completed Boats
Speed, Power and Delivery Guaranteed

MARINE ROLLER BEARINGS

Tenth and Latest Edition

Copy 75-C FREE

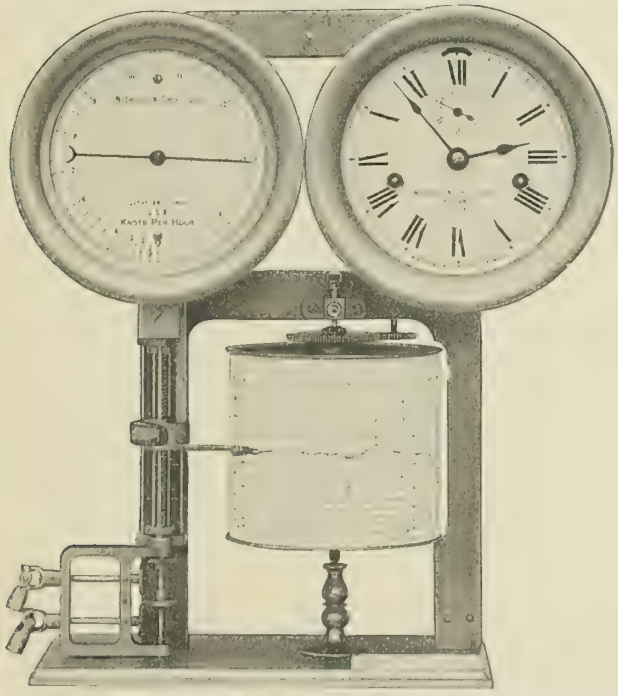
This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks," discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.
Jersey City, N. J.

Brass and bronze portlights, marine hardware and ship fittings are described in illustrated catalogue No. 2 published by the Delaware Marine Supply Manufacturing Company, Wilmington, Del. This is a very complete booklet of 108 pages, which should be in the hands of every ship and yacht owner and builder. Among the articles of marine hardware described and illustrated in this catalogue are deck sash hinges, navy standard berth hinges, head rest fixtures, loose pin butts of many kinds, loose joint butts, skylight hinges, ships' scroll hinges, navy hasps, condenser tube ferrules, brass nuts, hooks of all kinds, including sail hooks, door holders, etc.

THE NICHOLSON RECORDING SHIP LOG No. 2



FOR MOTOR BOATS, YACHTS, STEAM AND SAILING VESSELS

THIS LOG is entirely automatic and requires very little attention. It has no counter, but the distance sailed can be computed very closely by adding the average speed each hour shown on the record in miles or knots. Being able to know at all times the exact speed of the vessel by simply glancing at the speed dial and having the speed with time and date on a record chart, is of the utmost value to the navigating of a vessel.

IN SAILING VESSELS, the speed indicator will show how to trim the sails to the best advantage to insure the greatest speed. The log, when adjusted to the ship's speed, will run the distance correctly and remain in adjustment indefinitely.

NICHOLSON SHIP LOG COMPANY, CLEVELAND, OHIO, U. S. A.

EASTERN AGENTS, BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.
PACIFIC COAST AGENT, C. P. NICHOLSON, 82 Market St., San Francisco, Cal.

Gasket Sample Sent Free.—The Smooth-On Manufacturing Company, Jersey City, N. J., has issued an illustrated circular describing this gasket. The statement is made that "the Smooth-On gasket is superior to all others—not because it is corrugated—but because it is coated with Smooth-On elastic iron cement—made by us alone. This cement expands and contracts the same as iron. The gasket being of steel, expands and contracts with the piping. It is not simply tight while hot, and then loose when cold—it is always tight, and can be used for steam, air, water, oil, etc., with absolute security. Unlike some gaskets, the Smooth-On does not disintegrate, but remains intact indefinitely, and can be removed, recoated and repeatedly used. The joints can be easily taken apart." A free sample of this gasket will be sent to any engineer mentioning this magazine and sending his name and business address.

An improved hydraulic punch is described in illustrated circulars published by Watson-Stillman Company, 50 Church street, New York. "This tool has been improved very much over the original design. A much improved pump and lowering device has been introduced, the punch made very much lighter, and a new raising device has been put in, by which the punch can be pushed down to the work without the labor of pumping, and at the same time made much more durable. The punch is driven down by operating the pump inside the head or reservoir, the piston of which is connected to the socket in which the upper lever is shown. It is raised by bringing the socket down against the lug on head and pushing down the lower socket by a second lever, which does not interfere with that of the pump. All parts are readily accessible and very carefully designed, to avoid the tricky working and short-wearing quality of previous designs of this class of tools. The head may be turned to bring the lever to any desired position, and irregular dies may be used without danger. Body and working parts are steel."

The Collin pressure regulating valve for steam is the subject of an illustrated catalogue published by the Ohio Brass Company, Mansfield, Ohio. "The Collin pressure regulating valve for steam reduces the boiler pressure to any pressure required for heating, drying or other service. It maintains a uniform service pressure regardless of variation in the initial pressure. It operates low-pressure pumps and engines from high-pressure mains. It surpasses all other regulating valves in simplicity of design, accessibility of parts, reliability of operation. Continuous perfect regulation insured, as main valve cannot cut, foreign matter cannot reach controlling valve. The description and lists on the following pages are limited to our standard line of all-bronze valves, which includes sizes up to and including 2 inches. We are in a position to furnish valves for special service, and will give recommendations on receipt of full data as to the requirements and conditions of service. We have one of the best equipped valve shops in this country, and have manufactured high-grade reducing valves for years. Our inspection system is very complete, and only perfect parts are assembled in the valves. We guarantee this valve to maintain a uniform steam pressure when properly installed and kept free from dirt or scale and operated within the limits of pressure stamped upon the tag attached to the valve."

Rubber packing for all purposes is described and illustrated in a "Mechanical Rubber Goods" catalogue published by the New York Belting & Packing Company, Ltd., 91 Chambers street, New York City. In this catalogue is described and illustrated sheet packing of various kinds, red, black and white, high-pressure spiral piston and valve rod packing, rubber-cushioned diagonal expansion spiral packing, hydraulic packing and packing for expansion rings, plungers, pistons and many other purposes. Regarding Cobb's high-pressure spiral piston and valve rod packing, the statement is made that "Cobb's piston and valve rod packing is the outcome of years of experiments by its inventor, Mr. J. H. Cobb, who has been associated with the New York Belting & Packing Company, Ltd., for the past twenty-seven years. Cobb's packing is especially adapted to withstand heat and highest pressure. The rubber core of the packing is oil and heat-proof, acting as a spring or cushion in holding the packing up to the rod. The outer covering is made of a material that is not affected by heat; the lubricants employed are the result of much scientific research and are absolutely free from grits or acids. We guarantee Cobb's packing will pack any rod perfectly tight, as it will not get hard under any degree of heat. This packing can be ordered in long, straight lengths if desired, either round or square. We recommend the round spiral as the most convenient and desirable, owing to its construction."

Directions concerning the care of fire hose are published on a handsome wall card printed in several colors by the Eureka Fire Hose Manufacturing Company, 13 Barclay street, New York City. These directions should prove useful to all users of hose of any kind.

"Thor, the Motorcycle of Quality," is the subject of a folder published by the Aurora Automatic Machinery Company, Aurora, Ill., a subsidiary company of the Independent Pneumatic Tool Company, First National Bank building, Chicago, Ill. Anyone interested in motorcycling should write for a copy of this circular.

Metallic lifeboats and rafts, wooden boats of every description, steam and power launches and Englehardt collapsible lifeboats are described in an illustrated pamphlet published by the Lane & DeGroot Company, 17 Battery Place, New York City. This company has recently installed an up-to-date plant of pneumatic machinery, increasing its capacity to three boats and six rafts a day, and is able to promptly fill any emergency order. It always carries in stock a few boats and rafts of different sizes for immediate shipment.

"Leaving the Harbor" is the title of a marine scene, 15 by 10 inches, embossed and lithographed in several colors, which is part of a calendar published by the Baldt Anchor Company, Chester, Pa. We hesitate to tell our readers that a free copy will be sent to anyone writing to the Baldt Anchor Company and mentioning INTERNATIONAL MARINE ENGINERRING, because in several previous cases when we have done this the entire supply of calandars, watch charms, or whatever it might be, has been immediately applied for several times over, and has thus caused the Baldt Anchor Company much trouble.

"Steering Gears" is the title of Bulletin No. 5 published by W. D. Forbes Company, engineers, Hoboken, N. J. The gears made by this company have been fitted to many of the battleships of the United States navy and to many large merchant ships of various nationalities. A free copy of this catalogue will be forwarded to any reader mentioning INTERNATIONAL MARINE ENGINEERING. W. D. Forbes Company also makes propelling engines, blowers, centrifugal pumps and engines for marine electric light plants.

A free copy of the booklet "From Water to Steam," which is published by the William B. Pierce Company, 322 Washington street, Buffalo, N. Y., will be sent to any engineer mentioning this magazine. This book explains in detail the Dean tube cleaner, for both water-tube and return tubular boilers. Moreover, any engineer mentioning this magazine may obtain one of these tube cleaners on trial without charge. The company says, "Make the trial if you like after the boilers have been put into the best possible condition with whatever process or compound you regularly use. Make the test as difficult as you like. We have taken many a ton of scale from boilers reported to be absolutely clean."

Balanced trip and trip throttle valves are the subject of illustrated catalogue 8, section D, published by Schutte & Koerting, Twelfth and Thompson streets, Philadelphia, Pa. Regarding Schutte engine stops, the catalogue states that the necessity of an automatic trip or reliable engine stop on high-speed engines of all types is now universally conceded by engineers as the frequent result of fly-wheel explosions has taken precedent to boiler explosions. The construction of the company's balanced valves and their adaptability to quick and positive action makes them superior, so the manufacturer claims, as an engine stop.

"Magic Methods" is the title of a booklet published by the H. W. Johns-Manville Company, 100 William street, New York City. This booklet describes the "Magic" boiler compound, which is stated to be a radical departure from all other boiler-cleaning compounds and devices. "Although a liquid compound, its action is not chemical but purely mechanical and natural. Iron, under heat, attracts magic compound as a magnet does steel; the compound flows over the surface of the iron, coating it in much the same manner as cylinder oil coats the sides of a cylinder. The compound is drawn through the cracks in the scale and the iron. This action loosens the scale and it drops off. The scale sediment can then be readily blown off or washed out."

THE POWELL "TITAN" LEVER THROTTLE VALVE

FOR LAUNCHES, STEAM CARRIAGES, AUTOS, ROAD ENGINES, Etc.

No Friction. Is just what you require for a throttling and controlling Valve—it controls steam and other fluids most satisfactorily. The Valve has a full open way through the body. To open or close the Valve simply move the lever back or forth, and when closed the Valve is good and tight. It doesn't leak. The action on disk or seat being almost frictionless, the Valve wears and lasts a long time, and is therefore economical. Strong and compact, all parts made to a gauge, and interchangeable. Warranted for working pressures up to 175 lbs.

Send for catalogue illustrating our steam specialties.

THE WM. POWELL CO.

CINCINNATI, OHIO

NEW YORK, 254 Canal Street PHILADELPHIA, 518 Arch Street
BOSTON, 239-245 Causeway Street

REMOVAL NOTICES.

William T. Donnelly, consulting engineer, from 132 Nassau street to 135 Broadway, New York. The Chicago office of the Ohio Brass Company, Mansfield, Ohio, from 328 Dearborn street to suite 508 Fisher building, Dearborn and Van Buren streets. D'Olier Engineering Company, from 74 Cortlandt street to 114 Liberty street, New York City. W. Carlile Wallace, American representative of John Brown & Company, Ltd., from 15 Whitehall street to 203 Greenwich street, New York City. The general offices of the Wheeler Condenser & Engineering Company have been removed to their factory at Carteret, N. J. A New York City office will be maintained at 90 West street.

To the Hudson Terminal buildings, 30 to 50 Church street, New York City.—The Composite Board Company, from 26 Cortlandt street; the Ohio Brass Company, from 43 Exchange Place; the Watson-Stillman Company, from 26 Cortlandt street; James Beggs & Company, from 111 Liberty street; the New York office of the Chicago Pneumatic Tool Company, from 95 Liberty street; the New York office of the Wellman-Seaver-Morgan Company, from 42 Broadway; the New York office of the General Electric Company, from 44 Broad street (this company will occupy the entire seventeenth floor of the Cortlandt building, the southerly of the Hudson Terminal buildings, or about 31,000 square feet of space); the New York office of the National Tube Company, from the Battery Park building; the Newport News Shipbuilding & Dry Dock Company, from No. 1 Broadway; the Coatesville Rolling Mill Company, from 111 Broadway; J. J. McCabe, from 14 Dey street; Mosher Water Tube Boiler Company, from 1 Broadway.

MACHINISTS, TAKE NOTICE. Purchase Castings and Blue Prints of High Grade Gasolene Motor of World Wide Reputation, and start a profitable business. Write to-day.
F. P. CONRAD, 242 Freeport Street, Harrison Square, BOSTON, MASS.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD
It is a great MARINE FAVORITE
Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

TRADE PUBLICATIONS

GREAT BRITAIN

The Parsons Motor Company, Ltd., Town Quay, Southampton, is distributing its marine motor list for 1908. Two new sizes of engines have been added since last year, namely, 75-horsepower three-cylinder and 100-horsepower four-cylinder, both at about 450 revolutions per minute for heavy jobs. The catalogue also illustrates and describes the company's new reverse gear, which is said to be one of the simplest on the market. Parsons universal joints, water-cooled silencers, etc., are also included, and a new circular pump with several refinement sand all made of gunmetal. The boat-side fittings for the use of marine motor fitters will be found very useful articles. At the end of the list is a complete schedule of prices for general requirements, as well as for parts and spares of the Parsons marine motors and propellers, etc. The price is given in the most ample manner and in detail, and also in code words for every article right through the catalogue. This latter is a feature much appreciated by foreign and colonial customers and agents.

"Brook Marine Motors" is the title of a handsomely illustrated catalogue published by J. W. Brooke & Company, Ltd., Lowestoft. "The Brooke motors are constructed in an ideal factory, well lighted, well ventilated, well heated, clean and one equipped with the most modern of machinery for the rapid production of accurate high-class work. Thoroughness is the keynote of the whole organization, from the drafting room to the loading-out stage. No 'near enough' work is allowed to pass. Every part must be to gage and interchangeable, and the limits worked to are very close ones. The fittings, such as lubricators, switches and magnetos, are of the very best that can be obtained, for these are not made on the works, price not entering into the question. The result is the most perfect motor it is possible to produce of its particular kind. The wholesomeness of the motors may be exemplified by calling our customers' attention to the forged nickel steel crankshafts, the ground cylinders, rings, cross-head pins and bushes, the accuracy of the machine-cut gear wheels, the anti-friction white metal used for lining the bearings, the quality of the lubricators and the completeness of the whole equipment."

The Hesse patent reverse gear and thrust block is the subject of a catalogue published by Hesse & Savoy, Teddington, S. W. Lightness, quality, movable thrust blocks, a case that is oil tight, and including working parts in all sizes, superiority of the lever and wheel, are among the advantages claimed for this reverse gear.

Fluxite is described in circulars distributed by the Auto-Controller & Switch Company, Bermondsey, London, S. E. This is stated to be the most effective flux known to solder all metals except aluminum, and it is said that dirty, greasy and even painted metal (except iron) can be soldered without cleaning; that it does not corrode, and that it is as safe as resin for electrical work.

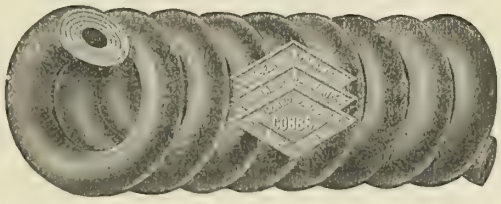
"Internal Boiler Management" is the title of a blue book written by J. W. G. Ross, to assist boiler owners, managers, engineers in charge, etc. This pamphlet is published and copyrighted by the "Boilerine" Manufacturing Company, 885a to 897 Old Kent Road, London, S. E., manufacturer of "Boilerine" compound for the prevention of incrustation in marine, locomotive and stationary steam boilers. This compound is guaranteed to be free from arsenic or other poisonous substances. The steam and water condensed from a boiler containing "Boilerine" is stated by the manufacturer, who will send analytical reports upon application, to be quite pure and free from smell, taste and color and fit for culinary purposes.

The chloride accumulator for yacht lighting is the subject of a handsomely illustrated catalogue published by the Chloride Electrical Storage Company, Ltd., Clifton Junction, Manchester. "The chloride accumulator has for many years past been in use on the principal yachts both at home and abroad, the distinctive features of its design rendering it peculiarly suitable for this class of work. The positive plate is a special Planté type and embodies the advantages of both ordinary Planté and pasted plates, but without their disadvantages. The active material, consisting of pure lead tape coiled up into rosettes, is contained in an antimonial lead grid possessing great strength and stiffness. The construction allows the electrolyte to circulate right through the plate from one side to the other, thus ensuring even working, and the very fullest advantage is thus taken of the entire surface of the active material."

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

CHICAGO, ILL., 150 LAKE STREET
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BOSTON, MASS., 232 SUMMER STREET
BALTIMORE, MD., 114 W. BALTIMORE STREET
BUFFALO, N. Y., 600 PRUDENTIAL BUILDING
PITTSBURGH, PA., 913-915 LIBERTY AVENUE
SPOKANE, WASH., 163 S. LINCOLN STREET
LONDON, E. C., ENGLAND, 58 HOLBORN VIADUCT

Quick-revolution steam machinery is described and illustrated in a catalogue published by T. A. Savery & Company, Birmingham. Regarding the Savery quick-revolution steam engines the catalogue states: "Our compound and triple-expansion steam engines are made upon the most modern methods, and we have incorporated in our designs all the latest and acknowledged refinements that it is possible to get, at the same time reducing the work to a minimum by the adoption of jigs and repetition work. We have incorporated in our designs the following improvements not generally recognized amongst marine engineers, but as we have designed our machinery to run at a very high rate of revolution, we find the necessary improvements add so much to the very fine results obtained in the running that we have decided to maintain this high standard of work throughout. We make a very important point of having very large bearings and wearing surfaces, and we have adopted the system, so well known in the motor world of the present day, of case-hardening and grinding in special machinery, all the joint pins and pins in the valve gear, thereby obtaining a closer fit and reduction in the amount of wear than if designed to run in bronze bushes, which would require renewing every few years, probably by local jobbing men, where all the effect of close work and alignment would be lost. Our valve gear parts are so designed and manufactured that they lay in perfect alignment when fitted in the engine, and have a minimum of clearance only in each joint just sufficient for the oil to work between. The actual clearance is measured in 1/10000 of an inch. The piston rods and valve rods are all case-hardened and ground in the gland portion, to obtain the very best results in running, packed with a special form of metallic packing, in which we can guarantee no steam to be visible when running from any of the glands. We have made a special study of case-hardening, which is done in a special muffle, and of a sufficient depth to enable the parts to be ground to a true surface and still be properly hard all over. Not merely a surface hardening and polishing afterwards. Each article is tooled down on the parts requiring to be hard to within a few 1/1000ths of size. It is then placed in the muffle and carbonized, but is left soft all over; then the parts which are to be soft when finished are roughed down nearly to size, the article is reheated and hardened, afterwards being straightened, if at all distorted, and is then put into stock for a considerable period, so that it may settle into a restful condition before being finished and ground. This entails three stages of machining, but we find that the results repay for the trouble, and we can confidently say that we produce the most silent running engine on the market."

The Seamless Steel Boat Company, Ltd., Wakefield, sole manufacturer of seamless steel motor boats, steam launches and motor barges, is sending out illustrated circulars describing some of its boats.

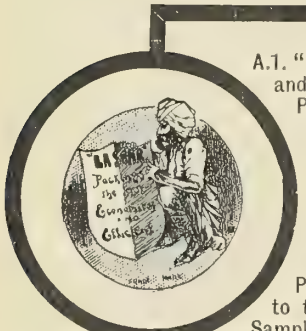
The general catalogue issued by Willock, Reid & Company, Ltd., engineers, 109 Hope street, Glasgow, consists of a collection of several hundred of this company's sheets, bound together in book form, and illustrating and describing scenes in the firm's shops, and the heavy machinery, steam engines, etc., which are its product.

Motor boats are described and illustrated in a catalogue issued by J. W. Brooke & Company, Ltd., Lowestoft. In this catalogue the company describes and illustrates a few of the many types of boats it builds. These few types will act as a guide to prices, but the firm states that it wishes it clearly understood that it is always pleased to quote prices on customers' own specifications and for special types of boats, steel as well as wooden.

The paraffin and petrol motors for marine, stationary and automobile purposes, sold by the Clift Marine Motor Company, 17 Philpot Lane, London, E. C., are described in illustrated catalogues this company is distributing. These motors are built to the company's design and under the company's supervision by the Thames Iron Works, Shipbuilding & Engine Company of London. The Clift Motor Company supplies complete vessels, fitted with its engines, built in either wooden or steel and can supply designs when requested.

Low patent radiators, especially designed for heating cabins and staterooms of yachts, steamships and warships, are described and illustrated in a circular issued by Archibald Low, Partick, Glasgow. This radiator is designed for hot water or steam, high or low pressure. It is fitted with steam and exhaust valves flanged, or with ground coupling tails, and is so designed that every square inch is a prime radiating surface. All radiators are tested to 200 pounds per square inch hydraulic and 120 pounds steam pressure.

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC



A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

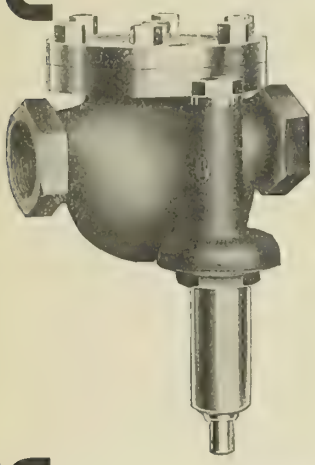
All Communications to
ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

J. & E. HALL Ltd.
(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)
REFRIGERATING MACHINERY
REPEAT INSTALLATIONS SUPPLIED TO

UNION CASTLE MAIL S. S. Co.	53	P. & O. STEAM NAV. Co.	33	HOULDER LINE, Ltd.	13
HAMBURG AMERICAN LINE	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	46	CHARGEURS REUNIS	22	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	40	TYSER LINE	13	CANADIAN PACIFIC Ry.	12

etc., etc.

ECONOMY



OF STEAM

Can be obtained in all places where it is used at pressures lower than the initial boiler pressure by using the

COLLIN
STEAM PRESSURE REGULATING VALVE

It MAINTAINS any desired pressure, regardless of variation in boiler pressure.
Main valve is balanced by pressure and WILL NOT become cut.
Controlling valve is OUT OF PATH of initial steam.
It is very simple in design, WITH FEW PARTS and can be easily taken apart.
It has no stuffing box or dash pot, requires no packing and is SELF CONTAINED.

Write today for Illustrated Booklet No. P-B.

THE OHIO BRASS CO.
MANSFIELD, OHIO, U. S. A.
CHICAGO OFFICE—277 DEARBORN ST.

THE PHOSPHOR—
—BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand." Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1.
Cheaper than any Babbitt's, and equal to best Magnolia Metal.

87, SUMNER STREET, SOUTHWARK,
LONDON, S.E.

Telegraphic Address: "PHOSBRONZE, LONDON." Telephone No.: 557, HOP.

The sanitary fittings supplied to the steamship *Mauretania* are described and illustrated in a folder published by Doulton & Company, Ltd., Albert Embankment, Lambeth, London, S. E.

"Appreciations" is the title of a pamphlet published by J. W. Brooke & Company, Ltd., Lowestoft. This pamphlet consists of letters and extracts of letters from satisfied purchasers of Brooke motors, motor boats, yachts and launches.

The hydraulic die forging plant at the Great Western Railway Works, Swindon, constructed by Fielding & Platt, Ltd., engineers, of Gloucester, is the subject of a large 14-page folder which is a reprint from *Engineering* of articles describing this plant.

The Lodge ignition coils, illustrated and described in circulars published by Lodge Bros. & Company, 14 New street, Birmingham, are said to be the ideal ignition for motor boats. It is said that the Lodge spark is remarkable for its igniting properties, its persistence and its freedom from short circuit.

The "Fastnut" washers made by Fastnut, Ltd., 60 Aldermanbury, London, E. C., are the subject of illustrated circulars published by this concern. This device is stated to be invaluable on steamships and for use on machinery of all kinds everywhere that nuts are used. It is said to be easily applied and easily removed, that it saves the ordinary washer, check nuts and the time drilling bolt and feeding split pins, etc. Shorter bolts can be used and no castle nuts and pins are required.

BUSINESS NOTES
AMERICA

MR. S. M. HILDRETH, formerly general manager of the Crandall Packing Company, is now special representative of the Clement Restein Company, Philadelphia, Pa.

THE POWER SPECIALTY COMPANY, 111 Broadway, New York City, manufacturers of the Foster patent steam superheater, has secured among recent contracts the following covering the installation of this superheater in the boilers indicated: Home Electric Light & Steam Heating Company, Tyrone, Pa., 840 H. P. in Heine boilers; Torresdale Filtration Plant, Philadelphia (second order), 900 H. P. in Heine boilers; Western Clock Manufacturing Company, La Salle, Ill. (second order), 300 H. P. in return tubular boilers; Bernheimer & Schwartz Brewing Company, New York City, 1,900 H. P. in Heine boilers; Garden City Company, Garden City, L. I., 200 H. P. in return tubular boilers; National Sugar Refining Company, Yonkers, N. Y., 1,134 H. P. in B. & W. boilers. It has also sold Foster superheaters of the independently-fired type to New Jersey Zinc Company, University of West Virginia, Abendroth & Root Manufacturing Company, Seacoast Canning Company. This latter company had within the past year equipped seven of its plants with Foster superheaters, the same being installed in return tubular type of boilers.

THE ROBERTS SAFETY WATER TUBE BOILER COMPANY, 39 Cortlandt street, New York, has been extremely busy for the last month or six weeks, necessitating considerable over-time being made at their works, in order to keep anywhere near the specified time of deliveries. The company has recently shipped twenty odd boilers of standard sizes; five to New York City, one to Boston, four to Portland, Maine; three to Staten Island, one to Brooklyn, one to Missouri, two to Norfolk, Va.; two to San Francisco, one to New Jersey and one to New York State, most of which, we are told, are orders from old customers who have used Roberts boilers in other boats which they now or have previously owned, and have, in consequence of the satisfaction which they formerly received, placed orders with the Roberts Safety Water Tube Boiler Company in the present instance without competition. Roberts boilers are said to be the pioneer of all marine watertube boilers, having been on the market for thirty years, and the first one that was ever built is still giving good service and has been every year since it was built. There are many hundred Roberts boilers in use, but we are told there is less trouble reported from all these boilers than there is from some other makes of more recent invention, and with less boilers in use, and, consequently, less opportunity for trouble. The greatest point claimed in favor of Roberts watertube boilers is the fact that they never need cleaning internally, and yet still remain clean internally indefinitely, which eliminates considerable trouble and expense. They are also said to be the most reasonable in first cost, and least extravagant to maintain.

AUGUST MIETZ, 128 Mott street, New York City, announces that he now builds oil, alcohol and gas marine engines in sizes from 2 to 200 horsepower; stationary from 1½ to 200 horsepower.

THE DELAWARE MARINE SUPPLY MANUFACTURING COMPANY, Wilmington, Del., has received an order for its patented portlights to be used on a steamboat building for the Egyptian government, at the works of the American Locomotive Company, Richmond, Va.

A GOOD IDEA.—The Delaware Marine Supply Manufacturing Company, Wilmington, Del., has been printing the following on the bottom of its letterheads, in order to give this matter widespread notice and to bring the same before the people interested in the welfare of the shipbuilders: "The passage of the 'Merchant Marine,' or 'Subsidy' bill in its fullest measure would mean greater prosperity to our country than has ever been experienced."

OLD MOTORS FOR NEW.—The Antoinette Motor Company, East Providence, R. I., has placed on the market an eight-cylinder four-cycle gas engine of from 60 to 200 horsepower. The weight is stated to be less than 500 pounds, and the manufacturer claims that four cylinders, giving half power, can be economically used. To introduce this motor to boatmen who want more and better power the company will take old motors in exchange.

BARRETT & LAWRENCE, 662 Bullitt building, Philadelphia, Pa., Eastern agents of the Nicholson Ship Log Company, announce the following recent orders: The Newport News Shipbuilding Company, a No. 1 Nicholson log, to be installed on the Texas Oil Company's new tank steamer *Texas;* the Minister of Marine of the Italian navy, a No. 1 Nicholson log for the battleship *Vittorio Emanuele;* Mr. Doscher, New York City, a No. 2 log for his yacht *Zurah;* the Standard Oil Company, a No. 1 Nicholson log for the seagoing tug *Astral;* the United States Navy Department, several logs for the new cruisers. Barrett & Lawrence have also recently received a number of other orders for Nicholson ship logs and speed indicators.

BUSINESS NOTES

GREAT BRITAIN

SMOKE ABATEMENT IN BOILER FURNACES.—The patent combustion apparatus devised, and now being extensively applied to the boilers in engineering and other public works, by Messrs. S. Pearson, Sons & Co., Glasgow, has recently been fitted to four large marine boilers in the shipyard of Messrs. William Simons & Company, Renfrew, with the result that over a stated period of test in three of the boilers under full load the evaporation of water per pound of coal was increased by 23 percent, while practically no smoke passed from the chimneys. Similar results have been obtained with four watertube boilers at the works of Messrs. Fleming & Ferguson, shipbuilders, Paisley.

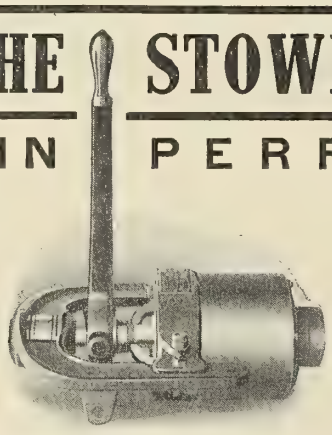
SOCIETE DES ATELIERS ET CHANTIERS DE FRANCE, DUNKERQUE.—This company has just received an order from the Compagnie Havraise Péninsulaire, Hâvre, for a screw steel steamer with a deadweight capacity of about 6,500 tons. This is the fourth vessel placed by these owners with the Dunkerque Company. An order has been placed with the same builders for a hospital ship for the Iceland fisheries. This vessel will be handsomely fitted out for this service and will have accommodation for a doctor, an infirmary, dispensary, captains, officers, etc., and be supplied with a compound surface-condensing engine and cylindrical boiler.

ADMIRALTY FILE CONTRACTS.—A few weeks ago the Admiralty distributed a portion of their annual contracts for files. The total quantity specified this year was for 22,000 dozen tools, about 5,000 dozen less than last year. It has been causing much satisfaction among Sheffield file makers that their interests have been fully considered, and one of the leading firms in the city, Messrs. Moses Eadon & Sons, have received an order for 6,000 dozen files out of a total of about 12,000 dozen already given out. The placing of these orders has been expected for some time, and their distribution is exceedingly welcome, as the trade has not been entirely free from depression.

THIS IS THE STOWE REVERSE GEAR

ALWAYS IN PERFECT BALANCE

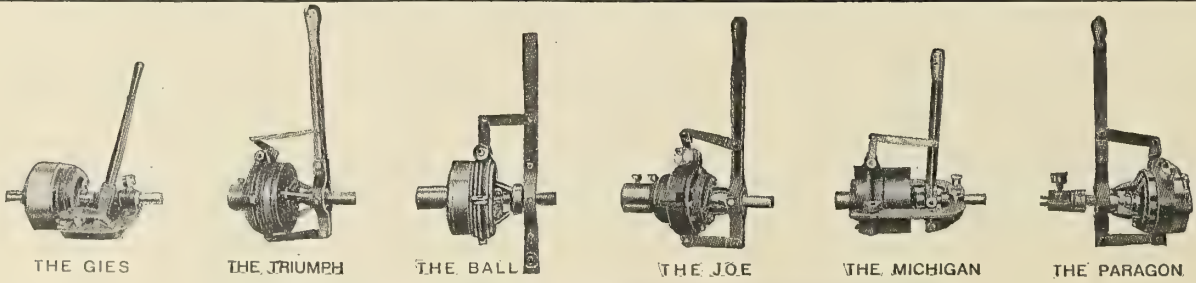
Simplicity, Strength
Durability, No Chains
No Couplings
No Projections
Easy to Install
Fits in Close Places



Drum Oil Tight, Turned and Polished
Gears of Steel, Bronzed, Bushed and Hardened
Adjustments Easy of Access

STOWE MANUFACTURING CO.,
WILMINGTON, DELAWARE.

WE INVITE COMPARISON



SOME OF OUR COMPETITORS

MARINE
GAS PRODUCERS

For any make of FOUR CYCLE ENGINE.

Uses small anthracite coal.

In sizes from 17 to 100 H.P.

THE MARINE GAS PRODUCER CO.

941 EXCHANGE BLDG. BOSTON, MASS.

AN ACTUAL CASE.—What an engineer says after fitting his vessel with a Weir D. C. feed heater: "She is giving every satisfaction and has saved on her winter running, against all the heavy weather and other drawbacks, 6 percent of her coal bill." This feed heater is made by G. & J. Weir, Ltd., Cathcart, Glasgow.

GREENOCK WATT MEMORIAL.—There will shortly be ceremoniously dedicated as a Navigation and Engineering School at Greenock the James Watt memorial building, which has just been erected on the site of the great inventor's birthplace from a fund subscribed to by sympathizers all over the world, headed by a donation of £10,000 by Mr. Carnegie. It will be entrusted to the care of the school board of Greenock, and an adequate sum will also be placed with the board to be appointed for the purpose of future maintenance of the building in all time coming.

ENGINEERING LABORATORY FOR DUNDEE COLLEGE.—The latest addition to Dundee College will be a laboratory for the study and practice of electrical engineering. The building for the new department is a gift by the sisters of the late Mr. T. L. Peters, who was formerly a Lord Dean of Guild of Dundee, and in a letter submitted to the college council they intimated they would give £4,000 for the purpose. Attached to the offer is a condition that the new laboratory will be maintained in a satisfactory state of efficiency, and that Mr. Peters' name will be associated with it. The gift was unanimously accepted.

SIMPLEX FURNACE BARS.—Steam users, both ashore and afloat, who have sought for economy and efficiency in their boiler rooms and stokeholds and have not yet succeeded, will read with interest the account of the results that have been achieved by the Simplex patent shaking furnace bars manufactured by Messrs. Railton, Campbell & Crawford, of Washington Foundry, Liverpool. The days of fixed fire-bars, and the use of the pricker, have long gone by. These were always a source of trouble, necessitating constant attention if the fires were required to be kept clean; and they were, besides, costly, because they were soon burnt through and had to be replaced. The Simplex shaking furnace bars, which have now largely taken their place—in marine boilers particularly—have done away with all this trouble and expense. They enable the furnace to be kept clean of clinkers, and the bars can be shaken in rotation by an ingenious arrangement—a portable handle—which will lift any fire-bar. Further, they are, in comparison, more durable, as the following experience of their use shows: The Simplex bars were first given a trial by the White Star Line on board the R. M. S. *Oceanic*, and whereas in twelve trips, when fitted with the old style of fixed fire-bars, she used 3,850 bars, she has only used 119 in twelve subsequent voyages after the adoption of the Simplex patent bar system. Another instance may be cited. The American liner *Merion* had her boilers fitted four years ago with the Simplex bars, and it is striking evidence in support of their durability that not a single bar has been burnt out, and they are still in use. Their arrangement in the furnace is simple, entirely under the fireman's control, and easy to work without having to open the furnace doors. They have already been adopted on some 170 ocean-going liners, including the vessels of the following well-known companies: White Star, Cunard, American, Royal Mail, Elder, Dempster, West India Company, Dominion, Leyland, Booth, Federal, Houlder Bros. and the Manchester Liners. The up-keep of the entire 170 steamers using the patent bars does not, in short, approach anything near that of one large steamer with the old style of furnace bars.

MARINE SOCIETIES.

AMERICA.

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
St. Nicholas Building, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

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HELP AND SITUATION AND FOR SALE ADVERTISEMENTS

No advertisements accepted unless cash accompanies the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

For Sale.—*London Engineering* for 1907, bound, and 1905 and 1906 unbound. W. T. Dimm, 2904 West avenue, Newport News, Va.

THE FRANCO-BRITISH EXHIBITION buildings are well in hand at Shepherd's Bush, and the arrangements bid fair to result in offering to the general public a very attractive visiting place during the summer months. Success should crown the efforts of the promoters in respect to all the objects in view; cementing of friendship between nations, illustrating the methods and manners of various countries, showing materials produced or manufactured in different lands, providing recreation for visitors, supplying accommodation and encouraging conferences, lectures and papers on subjects of general and special interest; and covering the outlay by receiving full and abundant patronage from sellers, buyers and visitors alike. We note that in connection with the Institute of Marine Engineers a paper by Mr. W. P. Durtnall is proposed for an evening during July, on "The Generation and Electrical Transmission of Power for Main Engine Propulsion and Speed Regulation," and for an evening during September a lecture by Mr. J. T. Milton on metals. Both of these subjects are sure to draw good audiences.

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Will hold the highest pressure

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You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Vancouver, B. C.—Carral & Alexander Sts.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.

Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

"Greae vs. Oil (Scientifically Compared)."—This is the title of a booklet that every engineer should possess. It contains in a practical and readable form the complete record of a series of lubricant tests conducted recently by the William Cramp & Sons Ship & Engine Building Company. The lubricants tested included three well-known lubricating oils and two prominent greases, one an animal and the other a mineral grease. The relative abilities of each lubricant to reduce friction, the amounts of each consumed and their respective behavior under heavy pressures are all brought out in a plain, common-sense manner that will be thoroughly appreciated by readers who have struggled through pages of ultra-technical stuff on this subject in a vain effort to get at its meaning. This booklet may be obtained free of cost by addressing the Keystone Lubricating Company, Department V., Philadelphia, Pa.

Automatic high-speed, enclosed, self-oiling vertical engines are described and illustrated in sectional catalogue No. 232 issued by the American Blower Company, Detroit, Mich. "There is a wide field for the use of small, high-speed engines, but there are few which will fill it with any degree of satisfaction to the purchaser, owing to the necessity for almost constant attention, frequent adjustment and numerous repairs. It was with the distinct purpose of producing a line of small engines equally as dependable as the best large, high-grade automatic engines, that the 'A B C' type A and type E, vertical, enclosed, self-oiling engines were designed. In these engines are combined graceful lines, a novel oiling system and the very best of materials, properly proportioned, finely finished and perfectly fitted. They will run continuously three months or more, requiring absolutely no attention further than to fill the sight-feed cylinder lubricator. Nearly all of them have run five months at a stretch before any oil was added to the initial supply, and some have run from twenty to twenty-four months with the addition of less than 5 gallons of oil and only one adjustment. No other double reciprocating engine, either large or small, ever equaled these performances, but they are no more than we expect of any of these engines, no matter what the service may be. Careful inspection of their construction has never yet failed to win the unqualified approval of the most critical observer, and we entreat your most thorough investigation."

"Mechanical Rubber Goods" is the title of a handsomely illustrated catalogue of 94 pages published by the New York Belting & Packing Company, Ltd., 91 Chambers street, New York City. This catalogue gives a brief account of the process of collecting rubber in its raw state and the total amount of the crude rubber trade in various countries. The catalogue makes the following statements regarding this company's rubber belting: "In comparison with other kinds, rubber belting possesses the highest efficiency for the transmission of power. Its basis of strength is cotton duck, the plies of which can be increased to resist any required tensile strain, and uniformity of strength and thickness throughout can always be relied upon. It is thoroughly waterproof, not easily affected by heat or cold, and its flexibility and smoothness of surface give perfect contact with pulley and insures the transmission of the maximum horsepower without slipping. These advantages are not combined to the same extent in any other kind of belting. Rubber belting is therefore adapted not only for all regular work, such as main engine drives, countershafting, etc., but by its nature is especially suited for saw and paper mill service, elevators and conveyors, threshing and brick-making machinery, and all exposed or out-of-door work. Tests show that adhesion of rubber belting is from 40 to 80 percent greater than leather, varying according to pulley surface. The speed at which rubber belts may be operated should not exceed 5,000 feet per minute; best satisfaction and economy are obtained when speed does not exceed 4,000 feet per minute. Tight belts are responsible for much waste of power. The best authorities estimate that from 25 to 40 percent of the total horsepower developed is wasted in turning the engine and shafting alone. By lagging pulleys with a piece of rubber belting adhesion is greatly increased. If a rubber belt slips, moisten it very lightly on the pulley side with boiled linseed oil. Never allow animal or mineral oils to come in contact with rubber belts. They are injurious and will eventually ruin the rubber. Full rolls of rubber belting measure, approximately, 450 feet, but other lengths and any width up to 72 inches, can be made to order at short notice. Our registered trade-mark is indelibly stamped on every belt at intervals of 25 or 30 feet. Seam side of belt should not be run next to pulleys. Belts give best service when sufficiently wide to run without slipping and still be moderately slack."

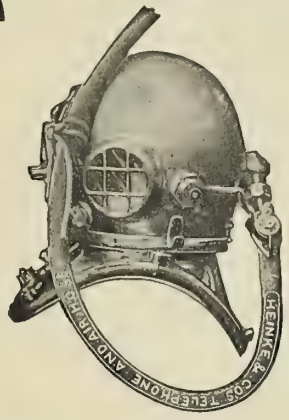

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Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

The seventeenth annual report of the directors of the Philadelphia Bourse has just been published and shows a most satisfactory condition. The exhibition department of The Bourse presents an excellent opportunity to engineers, boiler makers, boat builders and manufacturers of machinery of all kinds to maintain a permanent exhibition in the business center of Philadelphia, where they will come in contact with buyers all over the country.

Steam specialties are described and illustrated in catalogue F issued by the Ohio Brass Company, Mansfield, Ohio, manufacturer of gage cocks, water gages, bronze gate valves and fittings. Regarding the Ohio gate valve with double disc and rising stem, the catalogue states: "The Ohio gate valve is of medium pattern and made of high-grade steam bronze. The body is so designed as to thickness and distribution of metal that it will withstand pressures greatly in excess of the working pressure and yet not be affected by the expansion or sagging strains met with in pipe work. The discs are wedged between the seats in the body by means of a ball and socket bearing, which distributes the pressure uniformly on all parts of the seat. The discs are easily seated and will not stick in opening. The seats, stem and threads are well proportioned and will withstand hard service."

A free copy of the 1908 catalogue of engineering specialties made by the Lunkenheimer Company, Cincinnati, Ohio, which is just off the press, will be sent by the company upon request to those who mention this magazine. This is one of the most complete catalogues of its kind we have ever seen. It is cloth-bound, and comprises 564 pages, 7¼ inches by 5 inches, and there must be at least a thousand illustrations. The steam specialties described are brass and iron valves, whistles, cocks, gages, injectors, lubricators, oil pumps, oil and grease cups, etc., for all classes of machinery. The catalogue should be in the hands of every marine engineer, boiler maker and power plant operator. In the back of the book are many valuable tables, such as metric conversion tables, squares, cubes, square roots, cube roots and reciprocals of numbers, natural sines, co-sines, tangents and co-tangents, information about the properties of saturated steam, instructions showing how to ascertain the horsepower of boilers, tables showing the tensile strength of materials, weights of metals, the coefficients of linear expansion, etc.

STARRETT TOOLS

GUARANTEED ACCURATE

Calipers	Try Squares
Clamps	Dividers
Gages	Micrometers
Rules	Levels
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Measuring Tapes	Speed Indicators

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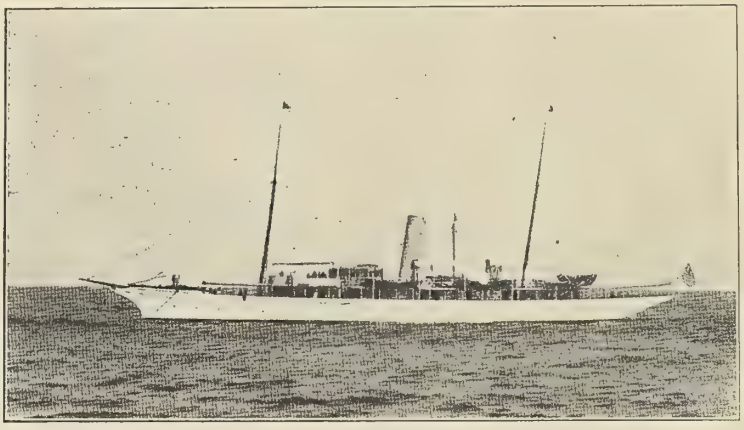
THE
L. S. STARRETT CO.
ATHOL, MASS., U. S. A.

Marine Roller Bearings for Propeller Thrust and other purposes



"Alcedo." Fitted with Standard Roller Bearings.

TASKER & STRAWBRIDGE
NAVAL ARCHITECTS AND MARINE ENGINEERS
Pennsylvania Building, Philadelphia, Pa.

WILL PROMPTLY SUPPLY DESIGNS and MACHINERY for BOATS FOR ANY PURPOSE

Heavy duty slow speed gasoline motors suitable for fishing and working boats, heavy cruisers, small tugs, etc.

Tenth and Latest Edition

Copy 75-C FREE

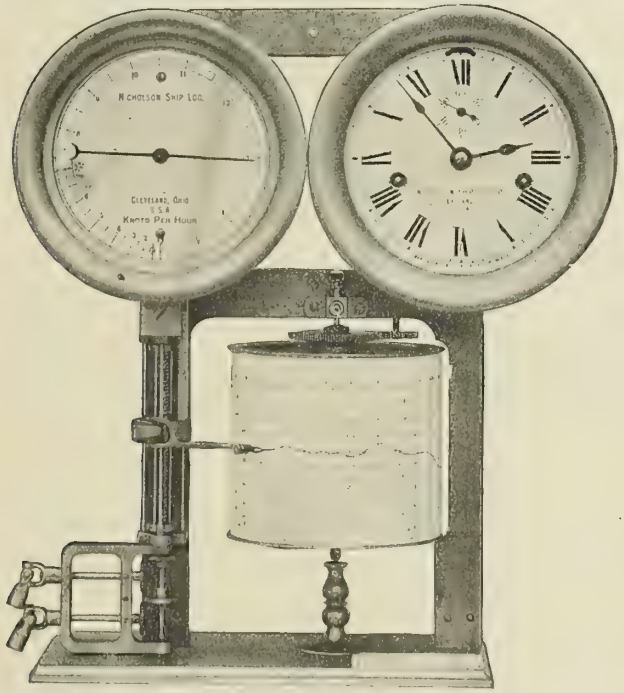
This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks," discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.
Jersey City, N. J.

Ship owners and builders interested in the subject of submarine signals should write to the Submarine Signal Company, 88 Broad street, Boston, and ask to be put on the free mailing list to receive this company's bulletins, which are issued at short intervals. In them are published the experiences of ocean liners with submarine signals. In Bulletin No. 31, for instance, is a report from Capt. Hogemann, of the North German Lloyd steamship *Kronprinzessin Ceceilie* in a heavy fog in the North Sea, when the submarine bells were distinctly heard at a distance of nearly 10 miles.

THE NICHOLSON RECORDING SHIP SPEED INDICATOR



FOR MOTOR BOATS, YACHTS, STEAM AND SAILING VESSELS

THIS LOG is entirely automatic and requires very little attention. It has no counter, but the distance sailed can be computed very closely by adding the average speed each hour shown on the record in miles or knots. Being able to know at all times the exact speed of the vessel by simply glancing at the speed dial and having the speed with time and date on a record chart, is of the utmost value to the navigating of a vessel.

IN SAILING VESSELS, the speed indicator will show how to trim the sails to the best advantage to insure the greatest speed. The log, when adjusted to the ship's speed, will run the distance correctly and remain in adjustment indefinitely.

NICHOLSON SHIP LOG COMPANY, CLEVELAND, OHIO, U. S. A.

EASTERN AGENTS, BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.
PACIFIC COAST AGENT, C. P. NICHOLSON, 82 Market St., San Francisco, Cal.

Special attention is called in the latest of the monthly stock lists published by the Bourne-Fuller Company, Cleveland, Ohio, to the very complete assortment of tool steel shown in the colored insert. The Borune-Fuller Company, besides dealing in pig iron, coke and steel of all kinds, makes a specialty of tool steel of all grades and tempers suitable for every purpose.

Woodworking machinery of all kinds is illustrated in catalogue 5 published by the Yerkes & Finan Woodworking Machine Company, 3141 North Ninth street, St. Louis, Mo. As the constant changing and bringing out of new tools make a general catalogue out of date in a short time, this company has found it more satisfactory to issue a pictorial book and to prepare separate corresponding numbered large circulars of the machines therein illustrated, giving general descriptions as to the size and the good points they possess. Upon request the company will furnish separate circulars and descriptive matter regarding any machine illustrated in the pictorial catalogue.

Bulletin No. 1 of the Sirocco Engineering Series, published by the Sirocco Engineering Company, 138 Cedar street, New York City, is just off the press. "About 1897 a radically new type of centrifugal fan was invented by S. C. Davidson, of Belfast, Ireland. It was patented in England in 1898 and in the United States in 1900. It was carefully perfected, and about 1899 was put on the market by Davidson & Co., Ltd., the Sirocco Engineering Works, under the name of 'Sirocco.' About 1903 it was introduced on the American market by the Sirocco Engineering Company, of New York. The success of the Sirocco fan was instantaneous. It opened a new era in fan construction. From its first entry on the British market its history has been one continuous and rapid advance, overcoming one after another of its competitors until it has reached a position of admitted superiority over all other centrifugal fans. Its pre-eminent position is admitted by all ventilating engineers who have kept abreast of current progress."

Bearing metals are the subject of a catalogue published by the Empire Metal Company, Syracuse, N. Y. The statement is made regarding "Silver Bronze," one of the bearing metals the company makes, that this metal will wear longer in crank pins, crank shafts and connecting rod boxes of steam engines than phosphor or manganese bronze bushings, on account of its superior anti-friction quality. "Silver Bronze," the manufacturer states, is a hard metal, possessing requisite tensile strength for service under exacting conditions where hot boxes must be avoided. It may be peined and pours freely from a ladle without chilling. The Empire Metal Company makes various bearings for different uses. The "Samson" is for large bearings under heavy pressure; the "Motor" is for intermittent strain and thrust, especially for crank shaft bearings and connecting rod bushings of gas engines; "Imperial" is for heavy load and high speed; "Copper Hard" for high speed and medium pressure; "Extra" for medium high speed and heavy pressure; "Triumph" for heavy pressure and high speed; "Electric" for irregular speed and heavy pressure. The company also makes bearings for various other purposes.

A New Weinland Turbine Cleaner.—Weinland boiler tube cleaners are now being furnished with a new type of head. The prominent feature of this Weinland "wing head," as it is called, is the large number of cutter wheels swinging on crosswise arms, and so mounted that the cutting wheels attack scale simultaneously in three different sections of the tube. Each arm works entirely independent of the others, so that the general effect is that of a number of cleaners all operating at once. The forward arms are provided with conical cutter wheels in front, each of which is followed by three star cutters mounted on the same shaft. The second, or rear arms, contain three cutting stars each, and finish the cleaning operation by removing the last particles which may have escaped the forward wheels. It will thus be seen that as each pair of cutters revolve in a different path a large surface is being cleaned at one time, and as the cleaner travels the scale surface is successively attacked by the separate sets of cutters. Numerous tests of the new type of head are said to prove that it works faster than the older types, and that it removes scale more thoroughly without injuring the tubes. The cone and star cutters are the only parts subject to much wear, and they may be replaced for practically nothing. The arms and pins are all hardened steel and made extra heavy, both to add strength and to give more power. A specially compact head with universal joint is made for cleaning curved tubes, and special sizes are made for each size of straight tubes. The Weinland ball and thrust-bearing cleaners, equipped with the wing head, are fully described in a new 36-page catalogue, which will be sent by the Lagonda Manufacturing Company, Springfield, Ohio, to those interested.

"The Verdict of Twelve Men" is the title of a circular issued by the Mianus Motor Works, Mianus, Conn. This consists of twelve letters from users of Mianus motors, all of them offering high praise for this company's gas engines.

Fine mechanical tools are described in catalogue No. 18-L published by the L. S. Starret Company, Athol, Mass. A free copy of this catalogue should be in the hand of every engineer and naval architect, and will be sent free to all readers who mention INTERNATIONAL MARINE ENGINEERING.

Graphite as a Boiler Scale Preventative.—Anyone interested in this subject should write to the Joseph Dixon Crucible Company, Jersey City, N. J., and ask to be put on the free mailing list of *Graphite*, published monthly by the company.

A 144-page stock list, published monthly by the Scully Steel & Iron Company, Chicago, Ill., will be sent free to readers of this magazine upon request. Steel flanges and plates, boiler tubes, small tools, machine tools, boilers, furnaces, etc., are kept constantly in stock ready for immediate shipment.

The monthly stock list of the Cincinnati Iron & Steel Company, Cincinnati, Ohio, will be sent to readers of this magazine upon request. It contains a complete list of the company's stock actually on hand on the date of issue, such as beams, channels, plates, boiler tubes, boiler rivets, flange steel, bar iron, boiler tools, etc.

"The Automatic Steam Towing Machine" is the title of a pamphlet which has just been published by the Chase Machine Company, Cleveland, Ohio, a free copy of which will be sent upon request. This pamphlet consists of a report of the article by Thomas S. Kemble, which appeared in the August, 1907, issue of INTERNATIONAL MARINE ENGINEERING, and in addition there are supplementary notes instructing regarding the selection of the size of towing machines, and half-tone cuts of two of the best-known makes now on the market; also a statement of the advantages of using towing machines.

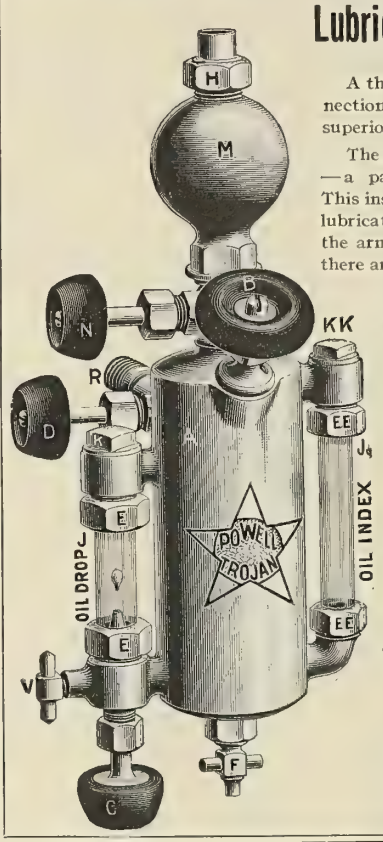
Steam packing for piston rods and plungers are described and illustrated in booklet "A" published by the Clement Restein Company, 133 North Second street, Philadelphia, Pa. "Belmont '1903' expansion packing is a packing of special type for use in stuffing-boxes of every description. For this purpose it is unequaled. In shape and composition it is precisely adapted to meet the severe requirements of this service, and gives better satisfaction for a longer period than any other packing made. The special merit of Belmont '1903' packing is partly due to the shape in which it is made, partly to the superiority and uniformity of the materials used in it. Care in manufacture also contributes materially to the excellence of this packing, and as the same attention to detail is paid in every style and at all times, there are never any variations in it."

TRADE PUBLICATIONS

GREAT BRITAIN

An epitome of lectures on the transmission of power by ropes is a pamphlet of 54 pages published by William Kenyon & Son, Ltd., Dukinfield, near Manchester. The introduction to this pamphlet states that the constantly increasing demand for epitomes of lectures on the transmission of power by ropes, delivered at technical institutions and before most of the leading engineering associations throughout the United Kingdom, is sufficient justification for the production of another issue. In this edition the company has sought to present not only the essence of its efforts, embodying personal experiences of American and Continental as well as home practice, but has also incorporated the gist of other expert evidence upon the subject.

The Powell "Trojan" Sight-up Feed Cylinder Lubricator



A thoroughly efficient double connection lubricator of neat design, superior workmanship and finish.

The body-shell is cast in one piece—a patented Powell construction. This insures positive feed and perfect lubrication under all conditions, as the arms can't get out of line and there are no joints to loosen or leak.

Oil chamber is filled directly through filling cup B on all sizes. You don't have to wait for oil to seep through small openings. See it at your jobber's—if HE does not carry it in stock, ask us who does.

Our 280 page catalog is yours for the asking. Write for it now while you think of it—a postal will do.

The Wm. Powell Co.

CINCINNATI, OHIO

NEW YORK, 254 Canal St.
BOSTON, 239-45 Causeway St.
PHILADELPHIA, 518 Arch St.

"Arctic" propeller fans are the subject of an illustrated catalogue published by the Wilson-Wolf Engineering Company, Ltd., Thornton Road, Bradford. These fans have been designed for moving large volumes of air at fairly low speeds and against slight resistance only, and are therefore especially suitable for ventilating where silence and minimum attention are required.

Marine type watertube boilers are described in a catalogue published by Babcock & Wilcox, Ltd., Oriel House, Farringdon street, London, E. C. These boilers are too well known to require description. A full-size marine catalogue, giving complete details of construction and maintenance and much useful information, may be obtained upon application to the company by our readers who will mention INTERNATIONAL MARINE ENGINEERING.

Savery's engines are described in an illustrated booklet published by T. A. Savery & Co., Bracebridge street, Birmingham. "One sees many an apparently good-looking and well-built engine which is nevertheless noisy, troublesome and short-lived in working, because the balance of moving parts has not been duly sought for and obtained. Balance, indeed, is the great secret of successful steam engine design, other things being equal; especially in the valve gear, on the one hand, and the pistons, connecting rods and crank shaft on the other. But one has only to stand by a Savery engine when running at its top speed, and to test it with sudden variations of speed as I did, to be assured, from its noiselessness and the absence of vibration, that the perfection of mechanical balance, as well as steam effort, has been achieved. Personally, I consider that Messrs. Savery's choice of the Joy valve gear and their modification thereof lends itself to this result; but other contributory factors undoubtedly are the size and length of all glands, bearings and steadies."

MACHINISTS, TAKE NOTICE. Purchase Castings and Blue Prints of High Grade Gasolene Motor of World Wide Reputation, and start a profitable business. Write to-day.
F. P. CONRAD, 242 Freeport Street, Harrison Square, BOSTON, MASS.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD
It is a great MARINE FAVORITE
Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

The special toughened glass plates, suitable for gage glass protectors, deck lights, ships' windows, etc., which are made by Carl Quitmann, 3 Cloth street, Long Lane, London, E. C., are the subject of circulars the manufacturer is distributing. The statement is made that a fall of a solid wooden ball, 6 ounces in weight, from a height of 8 feet upon the center of the glass plate, the extreme ends of which rest upon two wooden supports, will invariably fail to break the plate.

Ice-making and refrigerating machinery is described and illustrated in a very complete catalogue of 174 pages published by A. Borsig, Tegel, Germany—London office, Finsbury Pavement House, E. C. These machines operate on the sulphur dioxide system, and are said to be especially suitable for marine use. Among the ships equipped with the Borsig machines are the steam yacht *Lensahn,* belonging to H. R. H. the Grand Duke of Oldenburg; the cruiser *Vettore Pisani,* of the Royal Italian Navy; the Siberian Fishery & Trading Company's ship *Refrigerator,* and many others.

Appliances for reducing friction of the tail shafts of steamers and for preventing corrosion and rust in a stern tube are made by Benjamin R. Vickers & Sons, Leeds. The circulars which this firm is distributing state that experiments which have been made by running shafts on wooden bushes have shown that if oil is used in place of water a very large reduction of friction is secured. In the Vickers device the tail shaft is run in a bath of oil, and the statement is made that as this method results in a great reduction of the total friction, there is constantly a saving of coal or a corresponding increase in the speed of the ship. Many other advantages are claimed for these devices.

"Apexior" compound, which is not a boiler fluid, but a compound to be applied to the surfaces of boilers, is the subject of a booklet published by J. Dampney & Co., Ltd., Cardiff. "Apexio" is used for coating the internal surface of steam boilers, both marine and land, to prevent the deposit of hard scale and pitting; also for coating the external surface of boilers and pipes before clothing, and any iron or steel work exposed to violent influences, such as acid or alkaline fumes, as a protection from corrosion. This compound has been supplied to H. M. Office of Works, the Admiralty, War Offices, Crown Agents for the Colonies and for many power stations at home and abroad.

Monorail electric hoists, transporters and conveyors are described in illustrated folders published by Kramos, Ltd., Bath. The statement is made that their speed is about seven times faster than with hand-operated tackle; that ordinary trackways and existing girders can be fitted; that the initial cost is moderate, and that they are noted for their extreme simplicity and facility of control.

"Phosphor Bronze in the Marine Engine" is the title of Bulletin No. 5 published by the Phosphor Bronze Company, Ltd., 87 Sumner street, Southwark, London, S. E., and "the accompanying selected testimonials will prove to observant ship owners and marine engineers the unique value of genuine phosphor bronze in connection with all the wearing parts of a marine engine, and at the same time demonstrate the wisdom of using and specifying the original 'cog-wheel' brand alloys."

"Tauril," made by Ferguson & Timpson, Glasgow, is a high-pressure jointing suitable for steam, water and motor gear joints at temperatures up to 672 degrees. The manufacturers claim that it has advantages which no other jointing possesses; that it can be opened up as often as desired; that it does not lose its elasticity and solidify or cake, and that it is, therefore, able to withstand increased strains with varying temperatures.

Chain pulleys are described in an illustrated catalogue issued by Loveridge, Ltd., Cardiff. Among the various types of blocks made by this company are wrought iron pulley blocks for manila rope, rope pulley blocks of various types, special engineers' tackle blocks for wire rope, blocks for rope strapping, inside iron-bound blocks of several types. Besides this, Loveridge, Ltd., make screw-lifting jacks, marline spikes, hoisting crabs, ropes and cordage, etc.

Boring and surfacing machines are the subject of a large and handsomely illustrated catalogue issued by H. W. Kearns & Co., Ltd., Broadheath, near Manchester. The manufacturers make the statement that these machines are unequaled as reducers of machine costs; that great care has been taken in their design, and no effort has been spared to render them as handy and efficient as possible, and yet retain for them that rigidity and strength of substance which every practical mechanic knows is essential to the turning out of a quick and accurate work.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

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BUFFALO, N. Y., 600 PRUDENTIAL BUILDING
PITTSBURGH, PA., 913-915 LIBERTY AVENUE
SPOKANE, WASH., 163 S. LINCOLN STREET
LONDON, E. C., ENGLAND, 58 HOLBORN VIADUCT

Allen's steam striker is the subject of illustrated folders distributed by S. W. Allen, Cardiff. The illustrations show sectional view, side elevation, front elevation, back elevation, etc.

Rapid radial drilling machines are described and illustrated in a literature published by Midgley & Sutcliffe, Bradford. These machines are said to be second to none for modern construction, stability, accuracy and maximum output with economical work.

Recent developments in electric cranes and winches for marine services are described and illustrated in a catalogue issued by Chambers, Scott & Co., Motherwell, near Glasgow. The statement is made in this catalogue that a vastly greater return to the ship owner may be obtained from a ship equipped with electrical facilities for rapidly and economically handling homogeneous bulk cargoes, while a considerable saving by similar means may be effected in handling miscellaneous package goods.

"Norvic" steel boats are described in an illustrated catalogue of 28 pages published by Boulton & Paul, Ltd., Norwich. These boats are described as being "the boats of silent speed." The statement is made that all of Boulton & Paul's steel hulls are designed by skilled naval architects, and built to meet the individual requirements of clients; that perfect lines to any design are guaranteed.

The "Easy" pipe bending machine, made by Chas. Wicksteed & Co., Ltd., Kettering, is described in a folder this firm is distributing. The statement is made that for cold bending these machines are unequaled; that they require no skill, and will bend pipe of ordinary thickness up to a radius of 8½ inches without filling, and that they are perfectly suitable for bending hot when the nature of the pipe makes this advisable.

An apparatus for cleaning smoke tubes of tubular boilers is described in catalogues published by F. R. Winterburn & Son, 6 Francis street, Leeds, agent for André Dalmar, of Rouen, France. The Dalmar apparatus is said to avoid the objections of the ordinary devices for tubular boiler cleaning, and consists of the combination of hot air with the steam employed. The result claimed is that the tube is completely cleaned and free from any sediment.

The Drum Engineering Company, 27 Charles street, Bradford, has published an illustrated catalogue and price list of "Drum" pumps.

Royles, Ltd., engineers and specialists, Irlam, near Manchester, have published an attractive catalogue in English and French, describing their feedwater heaters, evaporators, condensers, bathwater heaters, steam traps, reducing valves, safety and release valves, boiler mounting, unions and bends and other engineering specialties.

A large catalogue published by J. Parkinson & Son, Canal Iron Works, Shipley, will be sent free to all readers mentioning INTERNATIONAL MARINE ENGINEERING. This firm is the manufacturer of the "Perfect" vise, the "Handy" vise and a full line of machine tools.

Direct-current dynamos and motors are the subject of a catalogue issued by the Wilson-Wolf Engineering Company, Ltd., Thornton Road, Bradford. The company states that its long and varied experience in motor manufacture has enabled it to produce an electric motor which in construction and operation is unsurpassed by any on the market.

Babcock & Wilcox, Ltd., Oriel House, Farringdon street, London, E. C., have published a handsome catalogue describing and illustrating silent gravity bucket and tray conveyors, automatic railways, etc., for economy in handling coal, coke and ashes. The advantages claimed are small driving power, automatic action, durability and interchangeability of parts.

Anchor rubber tiling is described in a catalogue published by Murray McVinnie & Co., Ltd., Mavisbank Quay, Glasgow. The advantages claimed for this tiling are that it is noiseless and non-slippery, practically indestructible from wear, waterproof, easily cleaned and sanitary, moderate in price, and that it can be laid on the floor without special preparation, thus making it an excellent flooring for steamships and yachts.

The "Octopus" automatic central lubricator for marine engines, which is described in circulars published by Benjamin R. Vickers & Sons, Leeds, is said to show a great saving of oil in actual work. A table is published showing the results of comparative tests between the old type of lubrication and the "Octopus" lubricator in three voyages of a screw steamer of 1,970 tons. The average saving of oil per day was 54 per-cent.

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC

A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
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Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

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(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
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REFRIGERATING MACHINERY
REPEAT INSTALLATIONS SUPPLIED TO

UNION CASTLE MAIL S. S. Co.	53	P. & O. STEAM NAV. Co.	33	HOULDER LINE, Ltd.	13
HAMBURG AMERICAN LINE	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	46	CHARGEURS REUNIS	22	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	40	TYSER LINE	13	CANADIAN PACIFIC Ry.	12

etc, etc.

This will identify our representative

Mr. H. N. DINSMORE

who is authorized to take subscriptions in any part of the United States and Canada, to collect the money due for new subscriptions and renewals, and to receipt for same in our name.

International Marine Engineering
17 BATTERY PLACE, NEW YORK

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—BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

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Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

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The best filling and lining Metal in the market.

BABBITT'S METAL.
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"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1.
Cheaper than any Babbitt's, and equal to best Magnolia Metal.

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BUSINESS NOTES

AMERICA

FREE.—A large can of Keystone grease, a fine brass grease cup and an engineer's cap. These articles will be sent absolutely without cost, express charges prepaid, to any marine engineer who will write Department V. of the Keystone Lubricating Company, Philadelphia, Pa., and mention INTERNATIONAL MARINE ENGINEERING.

THE PRATT & WHITNEY COMPANY, Hartford, Conn., advises us that its Boston office, with headquarters in the Oliver building, has fitted up a small tool sales department storehouse at 265 Atlantic avenue, where a full line of boiler shell taps, Renshaw ratchets, punches, dies and such tools as it usually furnishes the up-to-date boiler shop, will be carried at all times, and orders will receive prompt attention. Telephone, Fort Hill-1849.

AN IMPORTANT ANNOUNCEMENT is made in connection with the foundry business in Detroit, Mich. The American Blower Company has purchased the large foundry property of the Northwestern Foundry & Supply Company, and is thoroughly overhauling and remodeling the buildings, with the intention of making it one of the most modern plants in the country. It will be equipped with molding machines and the latest foundry appliances of every kind. The foundry has had a capacity of 50 tons daily. The soil pipe and fitting business, which was carried on by the Northwestern Foundry & Supply Company, will doubtless be disposed of by the American Blower Company. It includes a large supply of the finished material and a full line of patterns, flasks, etc. The American Blower Company purchased this property with the intention of operating it to manufacture the castings used in connection with its own business.

S. F. HAYWARD & CO. MOVE TO LARGER QUARTERS.—For a number of years S. F. Hayward & Co., New York, have been an important factor in the fire department supply business, and are to-day credited with being the largest supply house in the United States devoted to handling goods of this kind. "The steady progress which has marked the history of this concern since its inception in 1868, has been especially noticeable during recent years, and the company has now found it necessary to leave its old quarters at 20 Warren street for larger and better accommodations at 39 Park Place, New York City. The new location will be fully equipped to take care of the large and still growing business of S. F. Hayward & Co., in the most efficient and satisfactory manner, and there will be room as well for still greater expansion. Visitors in New York City will find 39 Park Place convenient to get at, as it is easily reached by the Subway, Brooklyn Bridge or the elevated roads and down-town ferries, and is but a short distance removed from the old place of business at Warren street."

A SATISFACTORY PROPELLER WHEEL.—The King Iron Works, 226 Ohio street, Buffalo, N. Y., writes us as follows regarding an "endless chain" of orders this company has recently been receiving: "About a year ago we received an order from an insurance adjuster in New York City for a propeller wheel, 11 feet 6 inches diameter, for the steamship *Katie*. She is a Norwegian fruit steamer. We had no pattern exactly suitable, so we made one. The wheel was shipped, and we heard nothing concerning it until November, when we received an order from Mobile for a propeller wheel for the steamship *Fort Morgan*, with a request that the wheel be similar to the *Katie* wheel. Last week we received another order from Mobile for a propeller wheel for the steamship *Helen*, to be similar to the *Fort Morgan* wheel. We also received an order last week from the owners of the *Fort Morgan* for a duplicate wheel, to be used on the steamship *Fort Gaines*. It would seem that these people were satisfied with the propeller wheels furnished, for in the same mail we received an order for a 10-foot 6-inch wheel for the steamship *Bodo*. In May we received an inquiry from Mr. L. F. Terry, who is in the oyster business at Greenport, N. Y., for a propeller wheel to be used on a gasoline oyster boat. He says: 'I would also like to know the size and pitch of the wheel you made for the tug *Jessie R.*, which is doing its work very nicely and drives the boat well.' We also received an inquiry from the same locality from the captain of the steam yacht *Christabel*. Mr. Ferguson, the owner of the yacht, says: 'You were the only people that made a satisfactory wheel for my steamer *Restless*.' The two incidents noted above demonstrate that a satisfactory product will advertise itself, providing, of course, you can get the information before the people who are interested in it."

The Terry Engine Company, room 307, Bryant Park building, Forty-second street and Sixth avenue, New York, has been incorporated with a capital stock of $50,000, to manufacture and sell a marine gasoline engine which will be known as the Terry engine. George H. Terry is president, C. A. L. Brown, secretary and treasurer. They, with Clifford H. Eagle, are the incorporators.

The Michigan Wheel Company, Grand Rapids, Mich., is working day and night to fill orders on its "Michigan" speed wheels and reverse gears, which the company is supplying to engine and boat builders, and those who are fitting new boats with propeller wheels and reverse gears. This does not look like dull times among the marine trade, as the company's business depends entirely on this trade, and it is receiving large orders from all over the country and even from foreign countries.

Jeffery's Special Marine Canoe Glue is guaranteed to be water-proof. "Its peculiar properties are those of flexibility and durability, and although it becomes soft and pliant under heat, it still retains its adhesion to timber, fiber, etc., and is clean and insoluble in water. No canoeist should be without a can of this glue; it is invaluable for quick repairs on either canvas or cedar canoes. After being melted over a moderate fire, spread the glue on the surface of the wood with a stiff brush, leaving on a heavy coat; lay the canvas on the glue and pass an ordinary hot flat-iron over the canvas and make the glue sweat through, taking care not to have the iron so hot as to scorch the canvas. Another way of application is to coat the canvas on one side and lay it glued-side downwards on the wood, passing the iron over as before—the canvas will then be found perfectly waterproof; and adhering tightly to the wood. A few galvanized tacks should be added to the edges and angles where necessary. The canvas can then be painted. For temporary repairs of punctures only a candle is needed for heating, dig out a piece of glue as large as required, mould it in the hands after greasing them with the candle, melt the face of the glue and apply to the hole." It is put up in friction-cap cans, 25 cents each, by L. W. Ferdinand & Co., importers and sale agents for the United States and Canada, 201 South street, Boston, Mass.

Notice.—We hereby notify every one that has bought our weedless propeller wheels from us direct, or indirect, and have used our weedless wheels as patterns, and have made weedless wheels from these patterns for their own use, or have sold them, to carefully keep a record of all weedless wheels made by them. Our design of weedless wheel is covered by letter patent No. 885,174, issued April 21, 1908, and a report is requested in full for all weedless wheels so made by the Michigan Wheel Company.

The Delaware Marine Supply Manufacturing Company, Wilmington, Del., has put in the most up-to-date cost-keeping and accounting systems, which enable the company to give the matter of quotations the very latest attention. In times of keen competition it is, of course, a matter of interest to know the least possible cost at which work could be turned out, and also to know exactly the value of improvements. This company has now begun to feel the effect of the system, and will be that much stronger in its competition with other manufacturers of brass and bronze hardware.

Weedless Wheel Patent.—The Michigan Wheel Company, Grand Rapids, Mich., was in April granted letters patent by the United States government on weedless propeller wheels. Copy of this patent has been received by us in which the company has four very strong claims covering their invention thoroughly. We are informed that this company will begin suit, sooner or later, against one or more large engine builders that are said to be making and using this identical weedless wheel. "There is a good deal of piracy in many lines of business, and when anyone gets up something good in the line of propeller wheels, there is a natural tendency for some that are interested to copy or procure all sizes of wheels and then put them out as their own and sell them as the original. These people never take into consideration that patterns and patents cost money, and that they like protection on their invention, and that there may be a day of reckoning for infringement of patents. Usually an inventor will wait for a few years before he commences suit so he will have something to sue on or a large royalty to collect. The Michigan Wheel Company could not be blamed for calling to account all companies that have bought the weedless propeller wheels from it and have used these as patterns, and have made weedless wheels and sold them or used them in connection with their business, and for demanding a royalty from these parties by suit if necessary, unless a license has been granted to them for the privilege of making them for their own use only."

THIS IS THE STOWE REVERSE GEAR

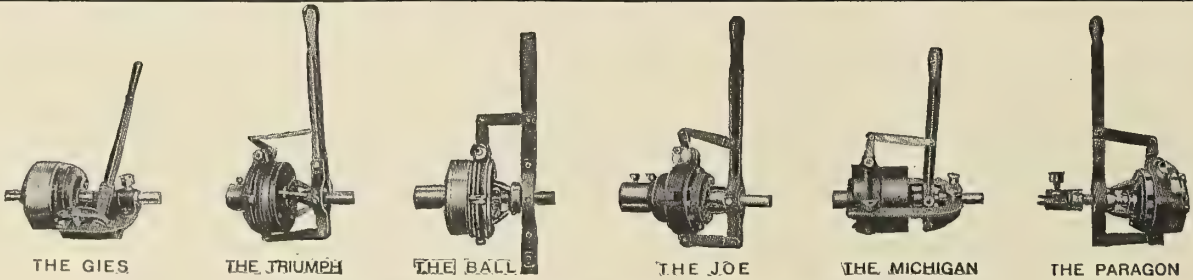
ALWAYS IN PERFECT BALANCE

Simplicity, Strength
Durability, No Chains
No Couplings
No Projections
Easy to Install
Fits in Close Places

Drum Oil Tight, Turned and Polished
Gears of Steel, Bronzed, Bushed and Hardened
Adjustments Easy of Access

STOWE MANUFACTURING CO.,
WILMINGTON, DELAWARE.

WE INVITE COMPARISON



SOME OF OUR COMPETITORS

TRADE PUBLICATIONS.

AMERICA

"Grease vs. Oil (Scientifically Compared)."—This is the title of a booklet that every engineer should possess. It contains in a practical and readable form the complete record of a series of lubricant tests conducted recently by the William Cramp & Sons Ship & Engine Building Company. The lubricants tested included three well-known lubricating oils and two prominent greases, one an animal and the other a mineral grease. The relative abilities of each lubricant to reduce friction, the amounts of each consumed and their respective behavior under heavy pressures are all brought out in a plain, common-sense manner that will be thoroughly appreciated by readers who have struggled through pages of ultra-technical stuff on this subject in a vain effort to get at its meaning. This booklet may be obtained free of cost by addressing the Keystone Lubricating Company, Department V., Philadelphia, Pa.

Air tools are the subject of catalogue H, issued by the Cleveland Pneumatic Tool Company, Cleveland, Ohio. The company states that for a number of years it has been perfecting its knowledge of new tool construction, and that every dollar that it has expended in new and improved machinery, in skilled labor and in experimenting, has been spent to attain greater excellence in the finished product. The claim is made for the Cleveland riveting hammers that they are the most powerful tools made, and that their low maintenance cost has established a standard for economy. The company makes twenty-two sizes of riveting hammers. Among the other tools illustrated and described in this catalogue are calking and beading hammers, air tools, hose couplings, valve grinders, stay-bolt chucks, emery grinders and tool dressing machines, etc. The company especially calls attention to its portable emery grinder and tool dressing machines, and to its stay-bolt chuck, both of which machines are new and are just being placed on sale. The stay-bolt chuck has one feature of importance not mentioned in the catalogue, and that is its reversibility. It reverses instantly by means of the loose roller changing position. It may be reversed while in action, and grips the stay-bolt firmly in both directions. It is said to entirely do away with the expense of squaring the stay-bolt, and the claim is made that it is the best article of its kind on the market.

Punches and shears are described and illustrated in catalogue "A," published by the Cleveland Punch & Shear Works Company, Cleveland, Ohio. This is a supplement to catalogue 6, and very fully illustrates and describes this company's line of tools. The castings are made in the company's foundry under the supervision of its own chemist, every heat being subjected to physical and chemical tests. Among the many tools of interest to boiler makers described in this catalogue are 48-inch and 60-inch throat punches, with boiler makers' jaw and re-enforced lugs; bar shears with engine drive; double angle shears; straightening rolls; plate planers; radial drills; punches and dies, etc.

The Collin steam pressure regulating valve is the subject of catalogue E issued by the Ohio Brass Company, Mansfield, Ohio. The statement is made that this steam valve not only reduces the initial pressure to any pressure required, but that it maintains a service pressure regardless of variation in the initial pressure. It is a regulating valve, not merely a reducing valve, and the claim is made that it surpasses all other regulating valves in simplicity of design, accessibility of parts and reliability of operation; that continuity of service is insured, as the main valve cannot cut and foreign matter cannot reach the controlling valve. The manufacturer guarantees the valve to maintain a uniform steam pressure when properly installed and kept free from dirt and scale and operated within the limits of pressure stamped on the tag attached to the valve.

The Engineer's Catalogue issued by the New York Belting & Packing Company, Ltd., 91 Chambers street, New York, will be sent free to all readers who will mention International Marine Engineering. This catalogue states: "We are pioneers and leaders in the manufacture of rubber packings, and while radical changes have been made from time to time in machinery, pumps, etc., since we made our first packing, our line has at all times been kept complete and up to date. When new conditions arise we are always successful in designing a packing to satisfactorily do the work, in every instance maintaining the same high standard of quality that has characterized our older products. For any conditions of service you have we can furnish the packing you require and guarantee entire satisfaction."

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road,
Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

Cables.—"HEINDIG, LONDON."
Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

A list of one hundred vessels in which the Mianus Motor Works, Mianus, Conn., has installed gasoline power, has been printed in pamphlet form by that company. This is only a small proportion, however, of all the vessels in which Mianus motors have been fitted.

Beginning with the July issue the *Engineer and Fireman*, published by the Penberthy Injector Company, of Detroit, Mich., was increased from 32 pages to an 80-page magazine, with 10,000 monthly circulation claimed and full of interesting and instructive reading matter of a mechanical nature. Free sample copy will be mailed to any reader of International Marine Engineering upon request.

"The Into Sail Hook," made by the Delaware Marine Supply Manufacturing Company, is the invention of Capt. J. M. Into, an experienced yacht captain. It has been adopted by the Herschoff Manufacturing Company, and is said to have been used with excellent results on all prominent American racing yachts. This sail hook was used on the *Reliance*, and Capt. Barr states that he never knew it to foul anything and that the crew found it easy to work.

Glacier Anti-Friction Metal, made by the Glacier Metal Company, 116 Broad street, New York City, is the subject of an illustrated catalogue the manufacturer has just issued. It is said that this metal, while especially recommended for high-speed and heavy-pressure machinery, can be used to advantage in all places where brasses or bearing metals are required, with greater economy and better results than can be obtained from any other metal.

Bolts and nuts are described and illustrated in a handsome catalogue of 160 pages published by the Russell, Burdsall & Ward Bolt & Nut Company, Port Chester, N. Y. Every user of nuts and bolts should send for this catalogue, a free copy of which will be sent to readers mentioning this magazine. This company manufactures bolts and nuts of every kind for every service, and makes a specialty of cold-punched, case-hardened, trimmed and semi-finished nuts for use in shipyards, engine shops, etc. The catalogue contains a full price list of all kinds of bolts and nuts. In the back are tables of United States standard and other sizes of cold-punched nuts of various kinds, hot-pressed nuts, etc.

STARRETT TOOLS

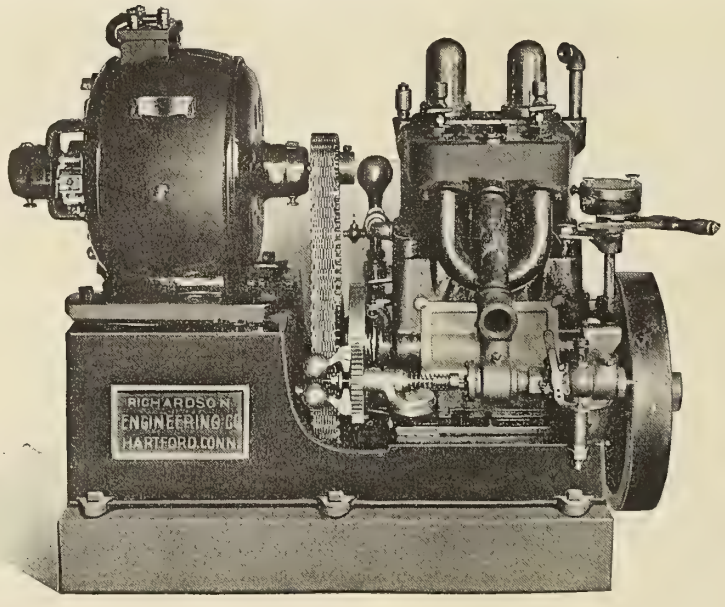
AND INSTRUMENTS OF PRECISION

are described in our 232-page catalogue, No. 18-L. This is a very complete and fully illustrated book, and a copy should be in the hands of every user of such instruments. Many new tools are shown by the more than 300 illustrations, and some additions to sizes of former tools have been made. A number of improvements in design will be noticed, and several more pages of useful tables are given than in earlier editions of the catalogue. There are a few changes in prices. The arrangement has been carefully revised, every tool indexed both by name and number, and no pains have been spared to make this the most complete, handiest, and most attractive tool catalogue ever issued. A glance at the table of contents will indicate its wide scope. Among the many instruments of which this company makes a specialty are calipers and dividers of all sorts, center punches, gages of every description, micrometers, rules and squares of all kinds, steel tapes, and, in fact, almost every kind of instrument of precision. Every tool sent out by us is warranted to be accurate. If, by chance, any tool should prove to be defective in material or workmanship, it will be immediately replaced.

FREE UPON REQUEST

THE L. S. STARRETT CO.

ATHOL, MASS., U. S. A.



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The most advanced, modern and efficient motors, lighting plants and storage batteries on the market to-day.

TASKER & STRAWBRIDGE

Rock bottom prices and immediate shipment

MARINE ENGINEERS

Pennsylvania Building, Philadelphia, Pa.

Usually have some second-hand motors for sale

D X N D X N D X N D X N

All Change Does Not Mean Progress, But all Progress Means Change

IF you are only familiar with oil and grease lubrication, well—look out for ruts. What is the benefit derived from adding Dixon's Flake Graphite to oil or grease? Hundreds of successful engineers testify that it lessens friction, prevents cutting, saves lubricant. Can you answer this question from "first-hand" experience?

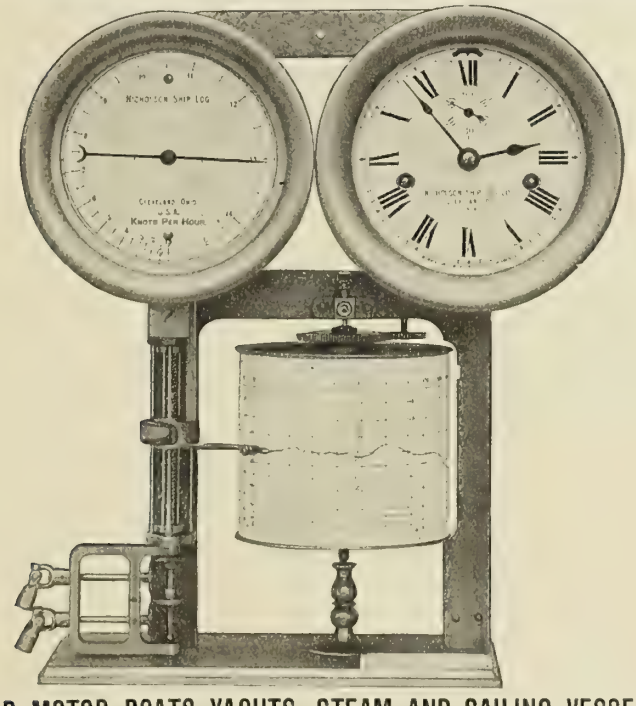
Write for free booklet 58-C and a sample.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

D X N D X N D X N D X N

"Some Things the Manufacturer Should Know About Coal" is the title of a pamphlet, by E. G. Bailey, published by the Arthur D. Little Laboratory of Engineering Chemistry, 93 Broad street, Boston, Mass. Requests for copies of the professional papers prepared at frequent intervals by the members of the staff have led to their publication in pamphlet form. A single copy may be obtained without charge upon request, but special terms will be made for furnishing the entire series or large numbers of any one paper.

THE NICHOLSON RECORDING SHIP SPEED INDICATOR



FOR MOTOR BOATS, YACHTS, STEAM AND SAILING VESSELS

THIS LOG is entirely automatic and requires very little attention. It has no counter, but the distance sailed can be computed very closely by adding the average speed each hour shown on the record in miles or knots. Being able to know at all times the exact speed of the vessel by simply glancing at the speed dial and having the speed with time and date on a record chart, is of the utmost value to the navigating of a vessel.

IN SAILING VESSELS, the speed indicator will show how to trim the sails to the best advantage to insure the greatest speed. The log, when adjusted to the ship's speed, will run the distance correctly and remain in adjustment indefinitely.

NICHOLSON SHIP LOG COMPANY, CLEVELAND, OHIO, U. S. A.
EASTERN AGENTS, BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.
PACIFIC COAST AGENT, C. P. NICHOLSON, 82 Market St., San Francisco, Cal.

Examination for Appointment of Cadet Engineers in the United States Revenue Cutter Service.—An exceptional opportunity is now offered bright young engineers to enter the government service as commissioned officers and secure a life position, with all the advantages of longevity pay, retirement for age or physical disability incurred in the line of duty, etc., as now obtain in the United States army and navy. The United States Revenue Cutter Service will hold an examination for the selection of candidates for appointment as cadet engineer to fill existing vacancies in that service, beginning Aug. 24, and covering a period of five days. This examination is open to all young men between the ages of 20½ and 25½ years who have had the necessary engineering training, either at some technical school or in actual work, and who produce satisfactory testimonials of experience and good character. The successful candidates will be appointed cadet engineers, and then probably will be assigned to the United States practice cutter *Itasca*, which vessel is the practice ship for cadets. During the term of service on the practice ship the cadet engineer is paid at the rate of $75 per month, and an allowance of 30 cents per diem for commuted rations. After serving not less than six months on this vessel, if he is found to be proficient in his duties, with the proper conduct and bearing of an officer, the cadet engineer is commissioned a third lieutenant of engineers in the regular line of promotion; his salary is increased to $1,700 per annum, and he is assigned to duty on some one of the large cruising cutters stationed at the various ports of the United States. Any person desiring full information relative to this examination should address the Secretary of the Treasury, Washington, D. C., stating his full name, age and experience, upon receipt of which request a pamphlet will be forwarded setting forth the proper manner of making application for examination and other regulations governing the admission of candidates.

TRADE PUBLICATIONS

GREAT BRITAIN

The "Kennedy" patent bending machine is described in an illustrated catalogue published by John Barker & Co., Ltd., Kensington, W. These machines are used for bending welded butt-jointed and seamless tubing; also round, flat, angle, tee and channel bars in copper, brass, iron or other metals.

A description of the naval construction works of William Beardmore & Company, Ltd., Dalmuir, has been issued in pamphlet form, with handsome illustrations of this company's boiler shop, engine shop, power house and some of the firm's products, such as propeller shafts, propellers, cast-steel stern frames, etc.

Patent regenerative spring balanced table planing machines are described and illustrated in circulars published by Joshua Buckton & Co., Ltd., Leeds. The claim is made for these machines that they effect a total saving of power at reversing, that they reverse with minimum loss of time and with extreme accuracy, and that they will carry heavy loads and take heavy cuts.

Sliding, surfacing and screw-cutting lathes for high-speed cutting by constant-speed belt or self-containing motor, are described and illustrated in circulars sent out by John Hetherington & Sons, Ltd., Pollard street, Manchester. This firm also makes high-speed universal milling machines, sliding, surfacing and screw-cutting lathes and many other machine tools.

The cargo winch section of the 1907 catalogue issued by Robert Roger & Company, Ltd., Stockton-on-Tees, describes this firm's latest designs in cargo winches. The firm endeavors to keep in view the fact that as ships become larger, the work to be done by winches becomes of a greater importance and of a more severe character, demanding good design, thorough workmanship and sound material.

The rotary pumps and blowers made by Lennox & Company, 27 Essex Place, Turnham Green, London, W., are described in a catalogue just issued by this firm. The firm states that its experience in the use and manufacture of all kinds of plants for the chemical, metallurgic, electrical and kindred industries, extends over twenty-five years, and enables it to produce combinations that are properly proportioned and adequate in all respects.

BUSINESS NOTES

AMERICA

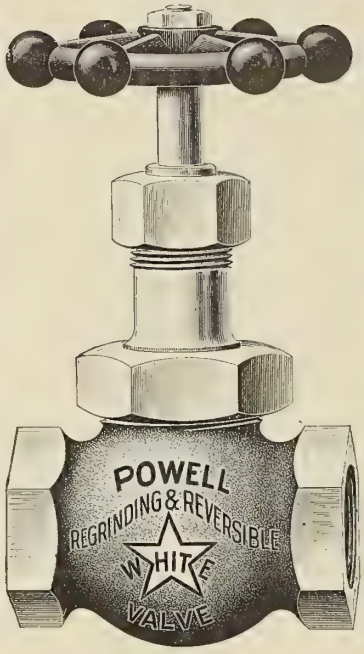
The New York offices of the C. H. Wheeler Manufacturing Company, makers of the C. H. Wheeler improved surface condensers, Mullan suction valveless air pumps and feedwater heaters, have been moved to the Engineering building, 114-18 Liberty street. Mr. Charles Lang is their representative.

A Large and Unusual Contract.—The United States War Department has placed an order with the Electric Launch Company, Bayonne, N. J., for thirty-two 32-foot gasoline junction box launches, for use in connection with submarine mine planting. These boats will have a beam of 9 feet, draft of 3 feet. The hulls will be substantially constructed with oak frames, heavy cedar planking and copper fastened throughout. Two cockpits will be provided fore and aft with central deck, at which point a substantial mast will be set. These boats will be equipped with two-cylinder 12-horsepower gasoline engines, giving a speed of about 8 miles per hour. The installation of the engines will be very complete, the exhausts being led under water, making them absolutely silent. The gasoline tanks are to be substantially built of heavy copper. The windlasses will be attached to the mast for use in raising and lowering the submarine mine junction boxes which these boats will be used to plant, the boxes being raised and lowered over the end of the boat. It is expected that this order will be completed by the end of the year. The Electric Launch Company recently built and delivered one of these boats equipped with electric power, and it is now in use at Fort Monroe, Va.

Taking Indicator Cards.—There has been a demand for a long time for an instrument that will enable the operator to produce indicator cards in rapid succession. At the present time a well-known concern states that four cards a minute can easily be produced with their indicator. They further state that on test runs, where all kinds of conditions are in evidence, the objectionable features are practically eliminated. Every engineer who has taken indicator readings is aware of the trouble experienced in hooking and unhooking drum cord, it being especially troublesome in close quarters. Engineers are aware, with the ordinary instrument, they hook and unhook leading cord, which stretches, and, of course, will not produce perfect diagrams. A short time ago an expert marine engineer took diagrams and was able to produce five cards in 61.5 seconds. The diagram showed clearly in every respect, and he was able to take cards at different positions of the piston stroke. It is stated that the company manufacturing this indicator has a very important feature found in no other, and if any reader is interested he should write to A-T-I, 219 Congress street, Boston, requesting copy of letter referring to the five cards in 61.5 seconds. It explains in detail an actual test, describing clearly why every engineer should own an indicator.

Powell's WHITE STAR Valve

the trouble eliminator



You don't have to change the disc every day as the metal is hard white bronze composition that will stand constant hard usage.

Used as a throttle on your steam pump it will outlast a large number of vulcanite or composition discs, and will outlast any other valve from two and five to one.

Don't take our word for it—TRY ONE.

Your jobber will supply it if YOU insist. If he won't, ask us who will Look for the name.

THE WM. POWELL COMPANY

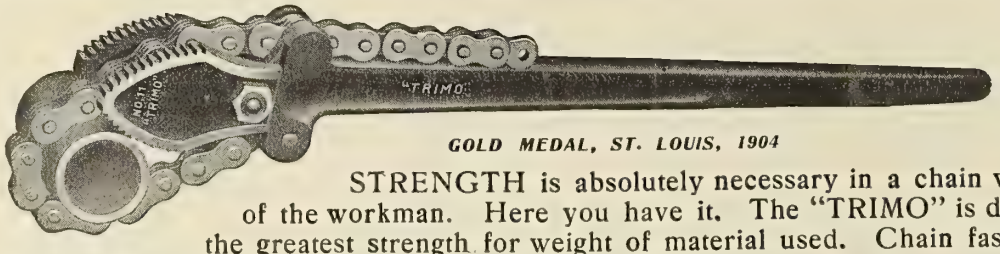
CINCINNATI, OHIO

New York: 254 Canal St. Boston: 239-45 Causeway St.

Philadelphia: 518 Arch St.

The Delaware Marine Supply Manufacturing Company, Wilmington, Del., has received an order for 200 steel portlights of special make, to be used in the Pennsylvania Railroad Company's steel cars now building at the American Car & Foundry Company's works, Wilmington, Del.

A Large Order for Tiling.—Andrew Dall & Son, Cleveland, Ohio, have recently placed an order with the New York Belting & Packing Company, Ltd., for the installation of interlocking rubber tiling in the Cuyahoga County court house, Cleveland, Ohio, for which Lehman & Schmit are the architects, amounting to $125.000. This is believed to be the largest order for rubber tiling ever placed, and was secured after an exhaustive examination into the merits of interlocking rubber tiling. It will be laid in the large court rooms, corridors, judges' chambers, etc., in different designs to conform with the color scheme of the various rooms, etc.



GOLD MEDAL, ST. LOUIS, 1904

"TRIMO" Chain Wrench

STRENGTH is absolutely necessary in a chain wrench to insure the safety of the workman. Here you have it. The "TRIMO" is designed throughout to give the greatest strength for weight of material used. Chain fastened to handle, therefore drawing stress is on the handle where it should be, instead of on the jaws.

Interchangeable and guaranteed. Send for catalogue 34 showing full line.

TRIMONT MFG. CO., 55 to 71 Amory Street, ROXBURY, MASS., U. S. A.

AGENTS IN ALL COUNTRIES

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

BUSINESS NOTES

GREAT BRITAIN

The India Rubber, Gutta Percha & Telegraph Works Company, Ltd., Silvertown, London, E. C., manufacturers of India rubber tiling, state that their product is especially adapted for use on board ship, that it is noiseless, waterproof, sanitary and durable, that there is a large variety of colors and an almost unlimited range of designs. This company also makes valves, washers, belting, hose, etc.

The Yarrow Removal.—The serious work of removing the highly special machine tools and other equipment of the works of Messrs. Yarrow & Co., Poplar, to the company's new establishment at Scotstoun-on-the-Clyde is now being entered upon, although, as is well known, the new works, as far as the shipbuilding branch is concerned, have been in operation for some months past. Entirely new overhead cranes of Appleby's and Broadbent's make are installed throughout all the new shops and over the fitting-out basin, and a large number of new tools are installed in the shipbuilding and boiler-making sections; the whole being electrically driven by current obtained from the Clyde Valley Supply Station at Yoker, about half a mile distant. But by far the larger body of machine tools and appliances for the Scotstoun works as a whole has still to be removed from the Poplar works about to be vacated. The Poplar works themselves, as presently arranged, are not many years old, and this is particularly true of the machinery with which they are equipped. The dove-tailing, therefore, of what is only old comparatively into what is new, and in every way up to date, will prove no very difficult undertaking. The working staff at Scotstoun is already largely composed of "old hands" from the Poplar establishment, but the major portion of the Poplar staff will proceed to Clydeside in the order suited to the receipt and installation of the equipment, and incidentally at a time suited to the house occupancy regulations obtaining in Scotland. Mr. A. F. Yarrow himself, it is understood, will take up residence, for the summer months at all events, in the neighborhood of Killearn, Stirlingshire.

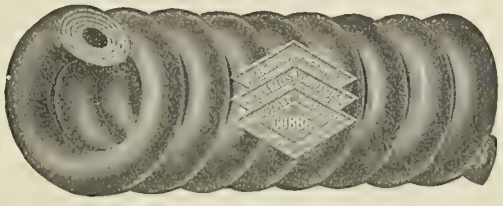
Shipyard Machine Tools.—Some notable machine tools for work in one of the shipyards of Germany, in which naval contracts are almost constantly on hand, are at present being manufactured in Glasgow engineering shops. One interesting item is a set of heavy plate rolls which will rank amongst the largest tools of this description ever produced. This will be capable of dealing with plates 36 feet 6 inches long, 1⅝ inches thick, and practically any width. This heavy appliance is being made by Smith Bros. & Co., Kinning Park, Glasgow, who have also recently produced some heavy plate-edge planing machines capable of dealing with nickel-steel plates up to 30 feet long and 2 inches thick for use in Germany and Japan, as also in the Vickers, Sons & Maxim works at Barrow-in-Furness. Messrs. J. Bennie & Sons, Cardonald, Glasgow, have just installed a set of large plate-bending rolls in the works of J. & C. Grayson, Ltd., Liverpool. This machine tool is capable of rolling, cold, plates 35 feet long and 6 feet wide, and 1⅞ inches thick. Like the tools before mentioned this appliance is electrically driven.

Launch of Steamship Oratios Couppas.—On April 29, Messrs. Craig, Taylor & Co., Ltd., launched from their Thornaby shipbuilding yard, Thornaby-on-Tees, a handsomely modeled single-deck steel screw steamer to the three-deck rule, of the following dimensions, viz.: 356 feet by 47 feet by 23 feet 7½ inches molded. She is built of steel, to the highest class in Lloyd's registry, under special survey, and has poop, topgallant forecastle and long bridge extending over half the length amidships. Ample water ballast is provided for in double bottom fore and aft and in peaks. She is equipped with patent steam windlass, with quick-warping ends, steam steering gear, six steam winches, large multi-tubular donkey boiler, telescopic masts to the Manchester ship canal requirements, with derricks and derrick posts and all the latest improvements to facilitate the rapid loading and discharging of cargo. The accommodation for captain and officers is neatly fitted up in large deckhouse amidships, the engineers being in deckhouses alongside engine casing, and the crew in the forecastle. Her engines have been constructed by Messrs. Blair & Co., Ltd., Stockton-on-Tees, the cylinders being 23½, 39, 64 by 42, with two large steel boilers working at 180 pounds pressure. The vessel has been built to the order of Nicolas Couppa, Esq., Marseilles, under the superintendence of Mr. William Law, of Liverpool, and Mr. George Coundouris, of Cephalonia.

COBBS HIGH PRESSURE SPIRAL PISTON

And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

CHICAGO, ILL., 150 Lake Street
ST. LOUIS, MO., 218-220 Chestnut Street
PHILADELPHIA, PA., 118-120 North 8th Street
SAN FRANCISCO, CAL., East 11th Street and 3d Avenue, Oakland
BOSTON, MASS., 232 Summer Street
BALTIMORE, MD., 114 W. Baltimore Street
BUFFALO, N. Y., 600 Prudential Building
PITTSBURGH, PA., 913-915 Liberty Avenue
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

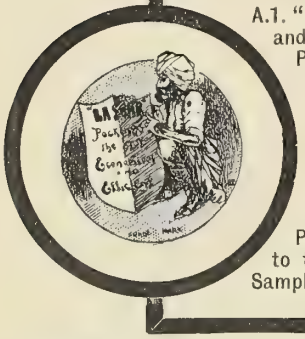
List of exhibits by Boulton & Paul, Ltd., Norwich, at the Municipal Exhibition, Agricultural Hall, London, May 1 to 12. A 25-foot steel motor boat hull, unfinished, to show our superior method of light but extra strong construction. Price, boat finished and fitted with 5-B. H. P. engine, £120. One 8-kilowatt portable paraffin-electric generating set, arranged for direct current at 65 volts. Will supply ninety tantalum lamps alight at one time. Specially adapted for driving motor pumps, air compressors, etc., on breakdown jobs. A portable petrol-driven pumping set, for pumping out sewage sumps, manholes or gullies. Adapted for municipal use, such as sewer stoppages, repairs, etc. A clutch is provided so that pump can be thrown out of gear and pulley used for driving any machinery, £65. A size No. 2 Boulton & Paul improved frictionless unchokable diaphragm pump, 5,000 gallons per hour; shown working. Price, £6. A size No. 3a diaphragm pump, 7,500 gallons per hour; used on sewerage works throughout the world. Price, £7 10s. A size No. 2a diaphragm pump, mounted on steel barrow. Price, £8 10s. A size No. 1 diaphragm pump, mounted on steel trestle; can be carried by two men. Price, £6 12s. 6d. A group of four, size No. 2a diaphragm pumps, mounted on bedplate and arranged for driving by belt; 20,000 gallons per hour. Specially adapted for pumping large quantities of clear water, sandy water, or thick sewage. Price, £46. A group of two, size No. 2a, diaphragm pumps, mounted on cast-iron bedplate and worked through gearing by our 2 to 3-horsepower petrol or paraffin engine on same bedplate. Price, £60. A group of various size diaphragm pumps, all of our own manufacture. Our improved hydraulic ram, size 2 inches, for automatically raising part of any running water up to twenty times its original head. As supplied to many of the leading estates under a guarantee for efficiency and output. An 8-foot diameter galvanized star windmill. Will work in a lighter wind than other mills; for pumping and driving machinery. Price, £13 2s. 6d. A size No. 1b diaphragm force pump mounted on barrow. Price, £9. A size No. 2b diaphragm force pump, £9. A Winterscales patent boot scraper for use on golf tees, public institutions, etc. Price, 15s. A group of 2 B. H. P. at 650 r. p. m., two-stroke marine petrol engines; only three moving parts; valveless and reversing. Price, £19, each complete with full equipment ready for installing. A group of 3 B. H. P., ditto. Price, £23, complete. A group of 5 B. H. P., ditto. Price, £36, complete. A 4-B. H. P. petrol or paraffin cycle engine for driving machinery. Price, complete with water and fuel tanks, £42. An 8-B. H. P. two-cylinder, ditto and as above. Price, £70. A 12 to 16-B. H. P. three-cylinder, ditto and as above. Price, £115. A 3-horse-power two-stroke paraffin commercial engine, working at 300 r. p. m. Price, £50.

Shipyard Machinery Contract.—It is stated that an order for almost the whole of the shipyard machinery required for an extensive new shipyard which is now being established at Hamburg, has been placed with Messrs. James Bennie & Sons, Clyde Engine Works, Cardonald, Glasgow, through Messrs. William Jacks & Company, Glasgow.

The L. S. Starrett Company announces that it has opened a warehouse at 36 and 37 Upper Thames street, London, E. C., and will hereafter carry its fine mechanical tools, hack saws, steel tapes, etc., in stock at that place. The London branch will execute orders, render invoices and receive payments. The company's catalogue, with prices and discount sheets, may be obtained at the new office, which will be in charge of Mr. E. P. Barrus.

The Fastest Warship in the World.—On the termination of the very severe series of trials which she has so satisfactorily undergone, H. M. S. *Tartar*, the turbine torpedo-boat destroyer built by Messrs, John I. Thornycroft & Co., Ltd., Southampton, was finally inspected by Rear Admiral MacGill, admiral-superintendent of contract-built ships, on the 15th inst. The *Tartar* is the fastest warship afloat, her speed on the official trials being 35.672 knots as a mean of six runs. During a six hours' run the mean speed proved to be 35.363 knots, while the fastest run was at the rate of over 37 knots. The speed guaranteed by contract was 33 knots, which she has easily surpassed and by a very handsome margin, thus earning for her builders a substantial premium. The vessel is 270 feet long. The propelling machinery comprises Parsons turbines and six Thornycroft watertube boilers, and both machinery and boilers were constructed by Messrs. Thornycroft. The armament consists of three 12-pounder guns and two torpedo tubes. The vessel has now been taken into commission by the fleet reserve, and will be stationed at Sheerness, where the wireless telegraphic apparatus will be fitted forthwith.

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC



A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

All Communications to
ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

J. & E. HALL Ltd.
(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)
REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

HAMBURG AMERICAN LINE	60	P. & O. STEAM NAV. Co.	33	HOULDER LINE, Ltd.	13
UNION CASTLE MAIL S. S. Co.	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	48	CHARGEURS REUNIS	25	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	45	TYSER LINE	16	CANADIAN PACIFIC Ry.	12

etc., etc.

THE MAKING, BENDING, AND CARE OF SAILS

By ADRIAN WILSON, of Wilson & Silsby.

"While we have made it a point for years to say as little as possible about the cut and making of American racing canvas, we believe the time has come when the protection of our interests makes it necessary that we put something into the hands of our customers that shall give them an intelligent understanding of why we do certain things, and shall help them to carry out, in the use of their sails, the work begun in the sail loft."

This is a paper-bound reprint of the articles by Mr. Wilson, which have recently appeared in International Marine Engineering. The pamphlet consists of fifteen printed pages, 12 x 9, with 38 illustrations.

PRICE, 50 CENTS

FOR SALE BY

International Marine Engineering

17 Battery Place, New York

THE PHOSPHOR— —BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand." Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1.
Cheaper than any Babbitt's, and equal to best Magnolia Metal.

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

Telegraphic Address: "Phosbronze, London." Telephone No.: 557, Hop.

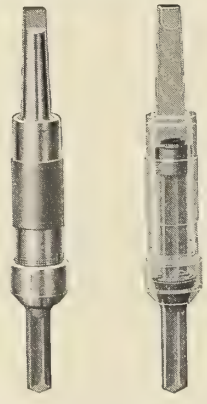
Franco-British Exhibition.—Among the exhibitors are the following: Babcock & Wilcox Company, Ltd. This concern provided the whole of the boiler house plant in connection with the turbines generating electricity, and comprising three Babcock & Wilcox boilers, each capable of evaporating 10,000 pounds of water per hour and fitted with Babcock & Wilcox superheaters, imparting from 100 to 120 degrees of superheat to the steam. These boilers were also arranged with Babcock & Wilcox patent mechanical chain-grate stokers. The whole of the steam fittings and auxiliary pipe as well as the steel-stayed chimney was also manufactured by this company. In addition to this, Babcock & Wilcox exhibit their marine type boilers, models of land-type boilers, automatic water softeners, etc. Harland & Wolff, Ltd., exhibit steam steering gear similar to that constructed for the *Adriatic, Amerika, Rotterdam*, etc., besides models of the *Cedric, Philadelphia* and *Marmora*. John I. Thornycroft & Co. exhibit a collection of models of the torpedo craft with which their name has been associated, as well as of several other vessels, such as H. M. S. *Tartar*, which attained on its official trials a speed of 35.67 knots per hour for six consecutive runs over the measured official knot. C. A. Parsons & Co., Heaton Works, Newcastle-on-Tyne, exhibit an 1,800-kilowatt turbine generator, which will run continuously, for the purpose of generating current for the lighting and power supply. The plant consists of a steam turbine arranged for driving two dynamos in tandem at a speed of 1,800 r. p. m. This turbine is of the latest improved parallel type, adapted for full range of expansion from the boiler to the condenser pressure, and is also designed to work non-condensing, and is suitable for working at a steam pressure at the boiler of 150 pounds above atmosphere and superheated steam. It is also fitted with a mechanical governor, arranged for a speed regulation within 2½ percent permanent and 5 percent momentarily when full load is thrown suddenly off or on. Aspinwall's Patent Governor Company, 7 Strand street, Liverpool, exhibits a marine engine governor which is said to be simple and inexpensive, not only preventing racing in heavy weather but shutting off steam entirely in case of a breakdown. This firm also exhibits an emergency governor for reciprocating engines and turbines. This is said to be exceedingly certain and powerful in action, and the statement is made that it may be adjusted to act at any predetermined speed, so that when the engines reach 5 percent above the normal speed, the governor instantly shuts off the supply of steam by means of the throttle or other valves. The British Westinghouse Company is not itself exhibiting, but is supplying plant and apparatus of various kinds to some of the exhibitors. To the exhibition authorities has been supplied a 500-kilowatt gas engine generating set for lighting the main machinery hall and for operating the machinery therein. The Canadian government has installed in its pavilion forty-eight Westinghouse arc lamps. The Australian pavilion will be lighted and the machinery therein operated from two Westinghouse gas engine generating sets. The British Westinghouse Company is also supplying motors for a number of other exhibitors. Palmer's Shipbuilding & Iron Company, Ltd., Jarrow, is represented at the exhibition by models of H. M. S. *Russell, Pique, Whiting, Belgia*, by models of a turbine torpedo boat destroyer, and of the screw steamer *Richard Welford*, all of which ships this company has built. Cammel, Laird & Co., Ltd., Birkenhead, are exhibiting a large number of models of ships built by them, such as H. M. S. *Pathfinder, Topaze, Diamond, Cossack* and several others, and also by models of a number of well-known merchant vessels. Archibald McMillan & Son, Ltd., Dumbarton, exhibit a collection of old models dating from the year 1843 (nine years after the firm was founded) up to the present day. Regarding present-day models, these consist of the large cargo vessel *Clan MacMillan*, recently built for the Clan Line, a passenger vessel for the Moss Steamship Company of Liverpool, a line vessel for the Bombay Navigation Company, and a full model of a steamer recently built for service on the Canadian Lakes, the machinery being placed aft with navigation house on the forecastle. Clayton, Son & Co., Ltd., Hunslet, Leeds, exhibit photographs of gasholders and structural work erected by the company in different parts of the world, also a section of Clayton & Pickering's patent spiral guide for gasholders, a corrugated flue for marine boilers, etc. Royles, Ltd., Irlam, near Manchester, are exhibiting Row's patent calorifiers with Royles patent automatic control device for heating water in large or small quantities by steam; Row's patent feedwater heaters for live or exhaust steam, Royles steam traps, reducing valves, steam and grease separators, boiler mountings, evaporators, condensers, etc. Small & Parkes, Ltd., Manchester, "Karmal" engine packing for steam and hydraulic purposes, hot water, ammonia and acids, also "Roko" and other belting. John Spencer & Sons, Ltd., Newcastle-on-Tyne,

a boiler plate said to be the largest ever rolled; anchors, railroad axles, furnaces, cast steel made for turning and planing tools, high-speed steel, etc. W. H. Allen, Son & Co., Ltd., Bedford, a 3-clyinder compound engine and a 2-cylinder compound engine, representing this firm's high-speed enclosed forced lubrication type, air pumps of various sizes, turbine pumps, oil engines, etc. Crossley Bros., Ltd., gas and oil engines. James Walker & Co., Garford street, West India Dock Road, London, E., packings for high-pressures of steam and water, ammonia, steam hammers, etc., and this concern's new "Golden Walkerite Jointing." Chance Bros. & Co., Ltd., Lighthouse Works, near Birmingham, optical apparatus, pedestals, clockwork machines, incandescent oil and wick burners, steel and iron towers, fog signal installations, port lights, etc. Mather & Platt, Ltd., gas engines, steam turbines, turbine pumps, iron tanks, etc. Pinceps & Co., piston rings, steam driers and packings for marine and land service. Vicker's Sons & Maxim's Sons, Ltd., models of ships built for the British, Japanese and Russian governments, including many well-known battleships, armored cruisers and smaller vessels. David Colville & Sons, Ltd., Motherwell, steel plates, channel bars rolling mills, etc. The National Gas Engine Company, Ltd., Ashton-under-Lyne, a producer gas engine fitted with the company's latest improvements in the way of throttle governor, compressed air starter, electric ignition, etc. Holzapfel's Compositions, Ltd., Newcastle-on-Tyne, anti-fouling compositions. C. E. Heinke & Co., 87, 88 and 89 Grange Road, Bermondsey, London, S. E., dividing apparatus of all kinds. The octagonal column that forms the central feature of the stand is covered with mother-of-pearl shells, brought from depths of from 30 to 40 fathoms by Japanese divers, with the use of the Heinke three-cylinder diving pumps and apparatus. The statement is made that more than 1,000 of this company's diving apparatus are in daily use. Five types of diving pumps are shown in this company's exhibition of submarine electric lamps, helmets, etc.

Turbines in the German Navy.—We are informed that a license contract has been entered into between the German Admiralty and the A. G. Brown Boveri et Cie., Baden, Switzerland, for the construction of marine steam turbines on the Brown Boveri system in the Imperial shipyards. Orders have already been given to the Kiel yard for the equipment of the new cruiser *Ersatz Sperbix* with turbines on this system.—*Engineering.*

New Coal Hoists and Engines for Boston, Lincolnshire.—Messrs. John Abbott & Co., Ltd., of Gateshead-on-Tyne, have received an order from the Boston harbor commissioners for a pair of hydraulic pumping engines which are to be of the horizontal high-pressure type, capable of delivering 300 gallons per minute at 750 pounds accumulator pressure with 100 pounds steam pressure; and a direct-acting coal hoist capable of handling 30 tons to a maximum height of 30 feet. It is pleasant to be able to record the booking of orders on the Tyne at a time when the relations between employers and workers are in a disturbed state in several important industries.

Launch of the Steamship City of Leeds.—On April 15 Messrs. Ropner & Son, Ltd., Stockton-on-Tees, launched from their yard a steel screw steamer of the following dimensions, viz.: Length, 370 feet; breadth, 51 feet; depth, 26 feet. The vessel is built to the highest class in the British Corporation Registry, and has been built to the order of Messrs. W. R. Smith & Son, Cardiff, and is fitted with the builders' patent improved trunk deck. The saloon, with accommodation for captain and officers, is fitted up at the after end of the trunk, and a house for engineers on trunk deck, with the crew in the topgallant forecastle. The vessel is built on the deep frame principle, the frames being of bulb angle steel, and the holds are clear of all obstructions to the stowage of cargo, there being no hold beams or wide stringers. She has capacity for about 1,300 tons of water ballast in her cellular bottom and peak tanks, and her measurement capacity is exceptionally large. Six powerful steam winches with extended ends, in conjunction with eight derrick posts arranged in pairs, with wire runners and purchase spans, form a most efficient arrangement for loading and discharging light and heavy cargoes. Steam is supplied to the deck machinery by a large horizontal multi-tubular boiler 10 feet 6 inches by 10 feet. The outfit includes stockless anchors, quick-warping steam windlass, steam steering gear amidships, and powerful screw gear aft. The hatchways are arranged in accordance with the Factory and Workshop Act as applied to docks. The accommodation flooring throughout is of "Litosilo" patent composition in lieu of the ordinary wood soles. The engines are of the triple expansion type, by Messrs. Blair & Co., Ltd., Stockton-on-Tees, of about 1 450 indicated horsepower on a very full specification, with boilers 16 feet 6 inches by 11 feet 6 inches, working at a pressure of 180 pounds.

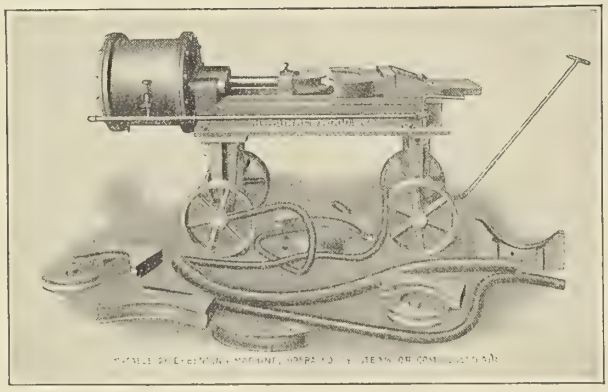


CELFOR DRILLS have cheapened the cost of drilling for hundreds of manufacturers.

They are cheap, because their cost of manufacture is low. Twisting a bar of high-speed steel is less expensive than milling. Celfor Drills are high-speed steel used to the best advantage. They have minimum weight and maximum strength.

Write for Free Catalogues

CELFOR TOOL COMPANY, 207 Railway Exchange, Chicago, Ill.



Portable Pipe Bending Machine

OPERATED BY STEAM OR COMPRESSED AIR
WILL MAKE A RIGHT ANGLE BEND IN 2" PIPE
IN 2 MINUTES

This pneumatically operated machine bends cold pipes to the desired radius without filling and heating and it neither flattens nor injures the work in any way. Capacity is for pipe from ½" to 2½" diameter, in any standard radius. Special dies can be had to order.

H. B. UNDERWOOD & CO., 1021 Hamilton Street Philadelphia, Pa.

TRADE PUBLICATIONS.

AMERICA

The American Manganese Bronze Company, 99 John street, New York City, has issued a catalogue in the interest of Spare's manganese, white and hydraulic bronze, of which the company is the sole manufacturer. Spare's manganese bronze is said to be a strictly high grade homogeneous alloy, possessing a tensile strength up to 70,000 pounds per square inch, an elastic limit of 35,000 pounds and an elongation of 25 percent with a reduction area of 25 percent. The tensile strength and elongation can be varied to suit special requirements, making it adaptable to a variety of uses. This bronze can be readily forged and rolled at a bright cherry heat, thereby increasing its tensile strength and elasticity. Spare's white bronze is not a babbit metal, but is strictly a bearing bronze, combining with great anti-frictional properties a high melting point, together with an elastic limit in compression of over 5,000 pounds per square inch, properties which make it especially valuable for use in marine engine bearings and connecting rods.

"Temperature Control for Steamships."—In this catalogue is illustrated and described a new device just placed on the market by the Geissinger Regulator Company, 203 Greenwich street, New York City. The manufacturers claim that with this regulator every compartment, or stateroom, on board ship can be heated to the exact temperature desired; that the occupants of staterooms have at their command two prearranged temperatures, one for day and one for night. The amount of electric energy consumed is said to be strictly in proportion to the demand for heat, thus preventing a great waste of power lost in the direction of surplus heat. Provision being made to prevent the escape of heat through open state room doors, maximum economy is secured, and it is claimed that when electric heat is installed in conjunction with automatically-controlled ventilating air it saves about 60 percent of the electric energy usually expended. This system of temperature control, according to the manufacturer, may be fitted to any ship with little additional wiring, and this wiring in all instances is entirely concealed. The Geissinger Regulator Company operates under patents granted and pending in the United States, Canada, England, Germany, France, Belgium, Russia and Japan.

"The Penberthy Engineer and Fireman."—July, 1908, marked the turning point in the career of this magazine. Established by the Penberthy Injector Company, Detroit, Mich., in 1893, as a four-page pamphlet, called *The Bulletin,* it has grown steadily, until to-day it ranks as an independent journal, and is conducted in the same manner as other trade papers.

The latest issue of *The Progress Reporter,* published by the Niles-Bement-Pond Company, 111 Broadway, New York, a free copy of which will be sent to any reader of this magazine upon request, illustrates, among other machine tools, a combined slotting, boring, drilling and milling machine, recently built from new designs, and capable of a great variety of work.

"Gauges" is the title of a very complete catalogue of 128 pages, published by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass. Among the many varieties of gauges illustrated and described in this catalogue are pressure and vacuum gauges, double-spring pressure gauges, auxiliary spring gauges, locomotive gauges, air-brake gauges, ammonia, hydraulic, steam and test gauges, etc. In addition to gauges, this catalogue illustrates and describes many other of this company's steam specialties, such as revolution counters, gauge cocks, dead-weight gauge testers, test pumps, thermometers, steam whistles, pyrometers, water columns, etc.

An attractive booklet of envelope size, entitled "Dixon's Ticonderoga Flake Graphite," has been received from the Joseph Dixon Crucible Company, Jersey City, N. J. It is printed in two colors, black and red, and this color scheme is carried out on the cover by using a black cover stock and red ink for printing the cover design, which shows a title in the form of a seal. Inside the matter is arranged page for page, each page dealing with some particular phase of the graphite subject. At the bottom of the page is given "third party's" testimony, bearing whenever possible on the particular phase treated on that page. Anyone who is interested in machinery of any sort will probably find in this booklet some matter to interest them. It is not lengthy, quite the contrary, but some interesting and valuable information is given. Any of our readers desiring a copy of this new Dixon booklet may secure it by writing direct to the Dixon Company.

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road, Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

Cables.—"HEINDIG, LONDON."
Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

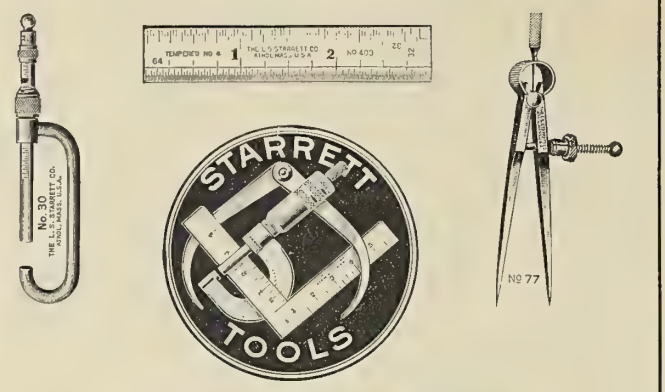
DIVER STEPPING ON LADDER TO DESCEND.

"Works and Products of the Allis-Chalmers Company" is the title of a booklet of 48 pages issued by the Allis-Chalmers Company, Milwaukee, Wis., showing a few of the standard products of this company, including pumps, engines, hydraulic turbines, centrifugal pumps, gas engines and numerous other machinery.

Coal-handling machinery, conveyors and industrial railways are the subject of pamphlet No. 081 published by C. W. Hunt Company, West New Brighton, N. Y. Only a portion of this company's product is illustrated in the booklet, but anyone interested in this class of machinery mentioned will receive further information and a larger catalogue upon request.

Steam specialties, such as gage cocks, water gages, bronze gate valves and fittings, are described in catalogues published by the Ohio Brass Company, Mansfield, Ohio. The Collin gage cock, manufactured by this company, is made of high-grade steam bronze finely finished, and is said to be absolutely tight under any pressure. It is equipped with a non-steam-cutting valve with a center drive spring, and can be furnished with or without the packless, non-sticking shut-off valve. This valve is said to be an improvement over the plug cock, and it will not stick or leak. This shut-off valve permits cleaning the main valve while the boiler is under pressure. The gage cock is also furnished without the shut-off valve when desired.

Steering gears are described in a catalogue published by the Akers Steering Gear Company, Old Colony building, Chicago, Ill. This catalogue states that if a regular steering gear of a ship becomes disabled control is lost, frequently resulting in collision or stranding and the consequent loss of time while repairs are being made in drydock. The cost of repairs is covered by the hull insurance, but the owner looses the daily earning ability of the vessel while out of commission, and this is said to average from $500 to $800 a day on a 10,000-ton ship. When a vessel is equipped with the Akers emergency steering gear the claim is made that collisions and strandings are prevented, because, should the regular gear become disabled no time is lost, as the Akers gear can be thrown into immediate operation from the bridge, with the result of controlling and protecting the ship indefinitely until repairs are made.



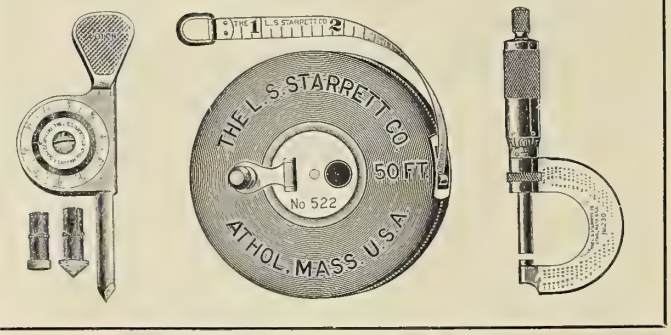
And Instruments of Precision

STANDARD THE WORLD OVER

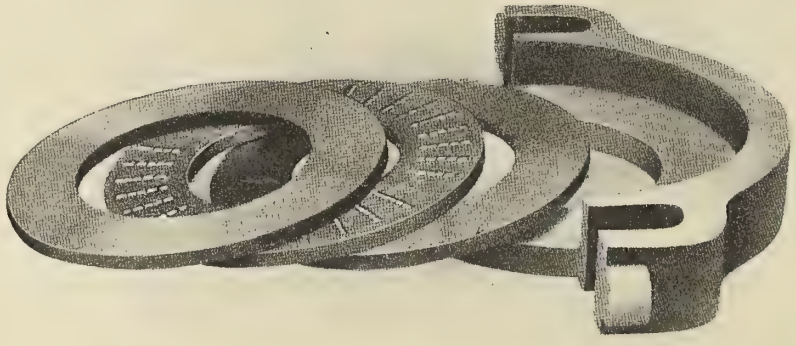
CATALOGUE 18-L FREE

THE L. S. STARRETT CO.

ATHOL, MASS.



A Specialty Made of Installing Marine Roller Bearings



TASKER & STRAWBRIDGE

MARINE ENGINEERS

Pennsylvania Building

Philadelphia, Pa.

We Superintend Construction and Report on designs, progress, trials and tests. Material accurately tested; ships, engines and machinery examined. Complete plans and estimates furnished. Draftsmen and Engineers of the highest ability are in our employ and at your disposal. Will undertake high class work at the shortest notice.

FROM A LARGE SHOP, DRAWING-ROOM AND SEA EXPERIENCE WE ARE IN THE BEST POSITION TO OFFER OUR SERVICES

D X N D X N D X N D X N

All Change Does Not Mean Progress, But all Progress Means Change

IF you are only familiar with oil and grease lubrication, well—look out for ruts. What is the benefit derived from adding Dixon's Flake Graphite to oil or grease? Hundreds of successful engineers testify that it lessens friction, prevents cutting, saves lubricant. Can you answer this question from "first-hand" experience?

Write for free booklet 58-C and a sample.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

D X N D X N D X N D X N

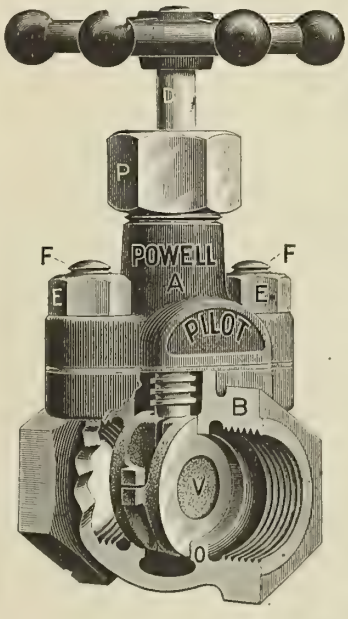
THE NICHOLSON RECORDING SHIP SPEED INDICATOR
FOR MOTOR BOATS, YACHTS, STEAM and SAILING VESSELS

Is automatic and requires little attention. It has no counter, but the distance sailed can be computed very closely by adding the average speed each hour shown on the record in miles or knots.

NICHOLSON SHIP LOG COMPANY, Cleveland, Ohio, U. S. A.
Eastern Agents, Barrett & Lawrence, 662 Bullitt Bldg., Philadelphia, Pa.
Pacific Coast Agent, C P. Nicholson, 82 Market St., San Francisco, Cal.

The Powell Pilot Brass Mounted or All Iron Gate Valve

A Double Disk Iron body Gate Valve for medium pressures. The body is strong and compact with heavy lugs carrying stud bolts E. The stud holes in lugs of bonnet cap A, being accurately drilled to template, permits the valve to be assembled any old way. No matter how you handle it after taking apart, it always fits.



The Double Brass Disks, made adjustable by ball and socket back, are hung in recesses to the collar on the lower end of the stem. Stem is cut to a true Acme thread, the best for wear.

The Powell Pilot Gate Valve is also made ALL IRON. For the control of cyanide solutions, acids, ammonia and other fluids that attack brass, it has no equal.

Send for special circular.

If YOUR jobber does not have them in stock--ask us who does.

THE WM. POWELL COMPANY
CINCINNATI, OHIO
New York: 254 Canal St. Boston: 239-45 Causeway St.
Philadelphia: 518 Arch St.

"The Bantam Anti-Friction Booster" is the title of a publication, of newspaper size, published by Mr. W. S. Rogers, of the Bantam Anti-Friction Company, Bantam, Conn. In addition to several columns devoted to editorial matter, local happenings, town topics and what is said to be "foreign news" (probably because it is altogether foreign to news), are several pages of interest to all users of roller, ball and radial ring bearings.

The Spline milling machine is described in a catalogue published by Pratt & Whitney Company, 111 Broadway, New York. This catalogue is handsomely illustrated and printed, as is always the case with the Pratt & Whitney publications. The statement is made in the introduction that the Spline milling machine is an absolutely new tool, embodying new principles, and taking care of work for which heretofore there has been no suitable machinery. By its use the designer is able to take advantage of the use of slots, which many times would simplify the design but which heretofore have been avoided owing to the high manufacturing cost.

Oxyacetylene portable welding and cutting machines are described in an illustrated circular distributed by the Beltzer Delcampe Welding Company, Bridgeport, Conn. Some of the applications of this company's machines are the welding of iron, steel, cast iron, copper, etc.; the repairing of castings of all kinds; the rapid construction of all kinds of piping; the manufacturing of seamless tanks; the rapid and cheap cutting of steel plates and bars; annealing of armor plates and forging of machine parts; the rapid disintegration of boiler incrustations and the melting of refractory material of any description.

"Pointers on Things Worth Knowing" is the title of a vest-pocket booklet issued by the Diamond Rubber Company, Akron, Ohio. Herein are presented certain rules and tables and other information found to be handy and applicable to the every-day problems which present themselves to the progressive engineer. A free copy will be sent any reader mentioning INTERNATIONAL MARINE ENGINEERING. The company also presents a line of valves which have been brought out strictly to meet the requirements of the marine trade. The manufacture of high-class condenser valves has for years been of the company's specialties, as well as hot water, ballast and bilge pump valves, etc.

The Baldridge reverse gear, made by the Smith & Baldridge Machine Company, Detroit, Mich., is described in circulars this company is issuing. The circular states that this gear has entered the motor boat field and has revolutionized the reverse gear business as it affords the most efficient means of reversing the propeller, or backing up, or for suddenly checking speed. In addition to this, the lever when brought to a neutral point disengages the propeller shaft entirely from the engine, allowing the engine to run free. This permits lying at a dock without stopping the engine and thus saves much cranking.

"Grease vs. Oil (Scientifically Compared)."—This is the title of a booklet that every engineer should possess. It contains in a practical and readable form the complete record of a series of lubricant tests conducted recently by the William Cramp & Sons Ship & Engine Building Company. The lubricants tested included three well-known lubricating oils and two prominent greases, one an animal and the other a mineral grease. The relative abilities of each lubricant to reduce friction, the amounts of each consumed and their respective behavior under heavy pressures are all brought out in a plain, common-sense manner that will be thoroughly appreciated by readers who have struggled through pages of ultra-technical stuff on this subject in a vain effort to get at its meaning. This booklet may be obtained free of cost by addressing the Keystone Lubricating Company, Department V, Philadelphia.

"Portable Heaters" is the title of the catalogue published by the Rockwell Furnace Company, 26 Cortlandt street, New York. These heaters are designed for heating work which is too bulky or too inconvenient to remove to a furnace and wherever it is desirable to take the heater to the work, such as annealing, hardening, expanding, bending, brazing, leading, milling, skin drying, rivet heating, etc. In shipyards, "crank expansion for taking out and replacing pins in engine work, a straight 8-inch pin, tight fit, has been replaced in one hour. Heating hubs of propellers to loosen them. Stern posts and shoes, distorted, can be heated with this device and straightened without removing, the saving equal to cost of several heaters. Plates that buckle in construction work are easily adjusted with a little heat at the buckling point. A 14-inch shaft has been sufficiently heated, with two burners, for straightening in two hours."

TRADE PUBLICATIONS

GREAT BRITAIN

Lancaster & Tonge, Ltd., Pendleton, Manchester, have issued a catalogue in the interest of their steam traps and steam driers. The manufacturers state that they have sold 80,000 steam traps during the last twenty-five years, and point out as evidence that these traps are still considered the best, that they have fitted to both the *Lusitania* and the *Mauretania.*

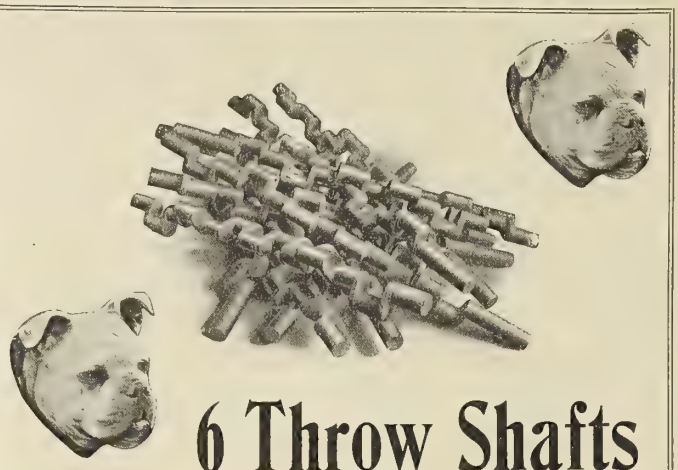
A patent water recorder for recording the flow of water over weirs or through notches is described in an illustrated catalogue published by J. E. Lea, 46 Brown street, Manchester. The purpose of this instrument is to measure and record graphically in a convenient and simple manner the variations in the rates of flow of water or other liquid, the records being produced in such a way that it is easy to measure the total volume of liquid passed during any interval of time.

Beldam's patent pilot packing is described in circulars distributed by the Beldam Packing & Rubber Company, 93 Gracechurch street, London, E. C. This is an asbestos-protected white metal bar packing with special heat resisting rubber backing, guaranteed to stand the highest temperatures. It is supplied in lengths or in rings. The Beldam Packing & Rubber Company makes packings of all kinds for low and high steam pressure, for ammonia and for glands, pumps and all hydraulic purposes.

Carron Company, manufacturers of ship fittings, drop forgings, woodworking machinery, etc., have issued an abridged catalogue for the export trade, which, while conveying a good idea of the class of Carron manufactures, is so small that it is impossible to illustrate all of the extensive variety of goods manufactured at Carron. Should the particular article required, therefore, not be illustrated in this catalogue, the company asks to be favored with full details of requirements, when they have no doubt of their ability to meet the case.

The steam steering gear made by R. Roger & Company, Ltd., Stockton-on-Tees, is described in a catalogue published by this firm, which states that it has been in the business of manufacturing steam steering apparatus for twenty-five years, and that the experience gained by building 700 of these gears has not been wasted. The characteristics of the Pepper steam steering gear, made by this firm, are said to be extreme simplicity, the facility with which it is kept in work and repair, its silence, and the fact that it works with steam of high or low pressure. All the working valves are sliding valves and in one chest, under one cover, and all wearing parts may be easily lubricated.

"Atlas" patent rolled weldless chains and cables are described and illustrated in circulars distributed by John Brown & Company, Ltd., Sheffield. Regarding the annular process weldless chain, the statement is made that "each link of this chain, instead of being produced from a solid bar, bent and welded, is rolled in a continuous coil, and subsequently compressed into a homogeneous piece by means of special machinery, the stud being at the same time fixed in position by hydraulic pressure, so that there is no possibility of its working loose. By this process of manufacture every link can be guaranteed equal to every other link in the chain, and the result of special trials has proved that it is at least 25 percent stronger than chains made by the ordinary method of hand welding. The links are about 30 percent stronger than is required by the Board of Trade rules. It will be noticed that this process of manufacture thickens the links at the ends considerably, which, of course, is a distinct advantage. These chains and cables can be produced at present from ¾ inch diameter of section of link, advancing by 1/16 up to 3½ inches diameter of section. The method of producing the 'Atlas' chain, together with some representations of various links, are shown on the annexed sketches, and John Brown & Company, Ltd., have every confidence that these chains and cables will be found by consumers a decided improvement on any other class of chain now in the market."



6 Throw Shafts

are not common in our art and success in making them encourages us to say that no concern is better equipped. Our toughening process gives you "all there is in it"—steel, wear and safety. Send prints for estimate on specials and get circular E-42 for stock lines:

26 kinds Single Throw. 4 kinds Double Throw.
4 kinds C. Bearing Double Throw.

and a number of dies available for four and six throw.

J. H. WILLIAMS & CO.
SUPERIOR DROP-FORGINGS
BROOKLYN, N. Y. CITY

Davies & Metcalfe, Ltd., Romiley, near Manchester, have published a number of illustrated circulars describing their "Hot Water" injectors for locomotive, stationary and marine types and Giffard's injectors.

Watson, Laidlaw & Company, Ltd., Glasgow, have published circulars describing their centrifugal machines, hydro-extractors and their patented superheater steaming apparatus for centrifugal machines.

Asbestos packings, sheetings, jointing, etc., are described in a catalogue distributed by the United Asbestos Company, Ltd., Dock House, Billiter street, London, E. C. This firm are contractors to the Admiralty, the War Office, the Office of Works and the Home Office; also to the India Office, the Colonial Office, Trinity House and the principal English, Indian, Colonial and foreign railways.

AMERICAN MANGANESE BRONZE COMPANY
SOLE MANUFACTURERS
MANGANESE BRONZE. HYDRAULIC BRONZE.
SPARE'S BRONZES TRADE MARK
WHITE BRONZE.
U.S. GOVERNMENT COMPOSITIONS.
INGOTS FORGINGS RODS SHEETS.
MARINE CASTINGS & PROPELLERS.
UP TO 20,000 lbs EACH.
99 JOHN STREET. NEW YORK.
CHICAGO 552 FULTON STREET
CLEVELAND, 1010 WILLIAMSON BUILDING
PHILADELPHIA ARCADE BUILDING
BUFFALO, 25 ERIE CO. BANK BUILDING

TRADE BRILLIANT MARK
IF YOU USE THE KING OF METAL POLISHES BRILLIANT YOU HAVE THE BEST IN THE WORLD
It is a great MARINE FAVORITE
Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.
TRADE BRILLIANT MARK

A wire rope list has been published in French and English by William Cooke & Company, Ltd., Sheffield, manufacturers of every description of bar iron, channel steel for rubber tires and wire rope for shipping, mining, etc.

Metallic packings, steam driers, piston rings, piston valves, piston heads, steam traps, etc., are described and illustrated in a catalogue issued by Princeps & Company, Sheffield. This company makes a variety of packings especially adapted for marine use.

Turning mills, vertical milling machines, boring, drilling and milling machines, self-acting planing machines and other machine tools are described and illustrated in folders distributed by Willock, Reid & Company, Ltd., Glasgow.

Iron and steel tubes are the subject of an illustrated catalogue published by John Spencer, Ltd., Wednesbury, Staffordshire. This company makes a specialty of iron and steel tubes and fittings of every description for gas, water, steam and hydraulic purposes, boiler tubes, compressed air tubes, etc.

Seamless tubes in steel, copper and brass, for all purposes, are described in a 144-page catalogue issued by the British Mannesmann Tube Company, Ltd., Salisbury House, London Wall, London, E. C. Among the articles for marine use made by this firm are boats' davits, booms, derricks, deck supports, floats, gaffs, masts and boiler tubes.

"Some Useful Notes on the Installation and Running of Marine Motors," by Ellis A. D. Kish, is a booklet somewhat different from ordinary trade literature, published by the Ailsa Craig Motor Company, Strand-on-the-Green, Chiswick, London, W., a free copy of which will be sent to any of our readers upon application.

"Electric Light and Power Installations" is the title of a handsomely illustrated book of 92 pages published by J. H. Holmes & Company, Newcastle-on-Tyne. This firm has furnished the electric light for many well-known steamships and yachts during the past twenty-two years. Among them are the royal yachts of Spain, Portugal and Siam, the Russian steamship *Smolensk,* the steamship *Kent,* and many others.

BUSINESS NOTES
AMERICA

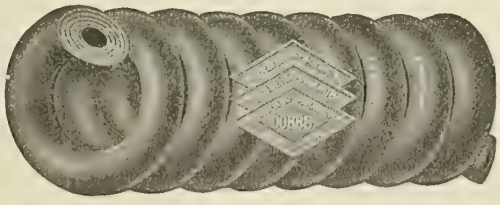
J. B. KANE, who has had several years' experience in the factory of the American Steam Gauge & Valve Manufacturing Company, of Boston, has been promoted to the position of salesman, and will make his headquarters at the New York branch of the company mentioned.

THE SCHUTTE & KOERTING COMPANY, Philadelphia, Pa., manufacturer of steam and engineering specialties for power plant, chemical and other industries, has opened a branch sales office in the Keenan building, Pittsburg, Pa., where it is represented by Mr. E. A. Knowlton. The new catalogue, which is being distributed in three sections, one section pertaining to apparatus for the chemical industry, one to apparatus for use in power plants, etc., and a general catalogue illustrative and descriptive of their entire line, is probably one of the most up to date and complete catalogues published by any engineering firm, and will be sent on request to those interested.

THE PARKESBURG IRON COMPANY, Parkesburg, Pa., manufacturer of boiler tubes and charcoal iron skelp, states that this company and its predecessor, H. A. Beale & Company, have been uninterruptedly making charcoal iron plates and skelp since 1866. "All the ability of its officers and the skill of its employees through three generations have been devoted toward developing and maintaining the highest standard of excellence in charcoal iron, with the result that its product, which has been used exclusively by the Allison Tube Company (later the Allison Department of the National Tube Company), and also by most of the tube mills in the United States, is conceded to be of the very highest quality and uniformity. Probably one-third of the charcoal iron tubes made in this country have been made from Parkesburg skelp. In charcoal iron, where close oversight and the personal equation of the workmen enter so largely, it is felt that the Parkesburg Iron Company's forge and skelp mill are most advantageously equipped, the raw materials being selected carefully, the process of manufacture being watched continuously, and the daily output being accepted only after it has passed successfully rigid chemical and physical tests."

COBBS HIGH PRESSURE SPIRAL PISTON
And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.
91 and 93 Chambers Street, NEW YORK

CHICAGO, ILL., 150 LAKE STREET
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BALTIMORE, MD., 114 W. BALTIMORE STREET
BUFFALO, N. Y., 600 PRUDENTIAL BUILDING
PITTSBURGH, PA., 913-915 LIBERTY AVENUE
SPOKANE, WASH., 163 S. LINCOLN STREET
LONDON, E. C., ENGLAND, 58 HOLBORN VIADUCT

THE RESULTS OF VIBRATORY TESTS of eight samples of Falls hollow stay-bolt iron made by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, have been made public. These tests were made at the laboratory of Purdue University on May 7, 1908. The tension load of each test was 4,000 pounds per square inch; the revolutions per minute were 100, and the average number of revolutions to rupture was 9,746. The tests were made on an Olsen stay-bolt machine, in accordance with the specifications recommended by the committee on stay-bolts of the American Society for Testing Materials. These specifications include the following: Tensile strength not less than 48,000 pounds per square inch; percentage of elongation in 8 inches not less than 28; percentage of contraction of area not less than 45; must stand 6,000 revolutions when one end is fixed and the other end (8 inches from fixed end) is moved in a circle of 3/32-inch radius, while the bolt is under the tension load of 4,000 pounds per square inch. The bolts were threaded with standard stay-bolt dies, twelve threads to the inch.

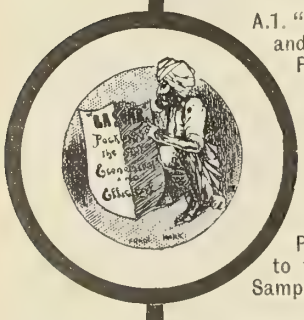
SALES OF SMALL CURTIS TURBINES.—The increasing use of small Curtis steam turbines is strikingly shown by an inspection of a partial list of turbines under 500-kilowatt capacity which, up to the present time, have been installed by the General Electric Company, or are under construction. Of the 570 odd turbines listed, representing a total capacity of about 37,000 kilowatt, 7 percent are for the export trade. The remainder are intended for domestic service in central stations, marine work, laboratories of educational institutions, power and lighting plants for hotels and office buildings, laundries, mines, printing establishments and in every branch of manufacturing. It is interesting to note the widely different industries in which small Curtis steam turbines are used. Among the list are woodworking plants, foundries, iron and steel mills, distilleries, chemical plants, ice plants, textile mills, breweries, tanneries, flour mills, shoe factories, paper mills, machine shops, textile mills, and ammunition manufacturing plants. Turbines for train lighting are finding a ready market and it is interesting to note that the leading railroads are using this method of train illumination. The latest application of moderate-size Curtis turbines is for driving fire pumps, in which capacity they have been very satisfactory. On board ship where a compact generating unit is required, small turbine-lighting sets are also rapidly coming into favor.

SHELBY SEAMLESS STEEL TUBING.—That the product known as the Shelby seamless steel tubing has been used for hundreds of different purposes is a well-known fact, but perhaps nothing illustrates its adaptability to different uses so strikingly as the articles shown in a photograph the National Tube Company is distributing. These articles, which form a complete lunch set, are selected from the individual pieces which formed a portion of a large set manufactured for use at a banquet given sometime ago to the officers of the National Tube Company, Pittsburg, Penn., manufacturers of the Shelby seamless steel tube. The dishes were formed, not cast, and it will be observed that this material may be hammered flat, as shown in the knife blade and spoon handle; curved in or out, as in the plate and spoon bowl; left in its original form, as in the napkin ring; expanded at one end to several times its original diameter, as in the goblet; or formed into a bell. The manufacturers claim that material which is capable of being shaped in this manner is eminently suitable for use in boiler tubes.

THE MAIN OFFICES of the Bird-Archer Company have been moved to the twenty-second floor of the West Street Building, New York City. The new offices contain more than four times the floor space of the former seven-room offices. This quadrupling of floor space, made necessary by an unexpectedly large increase in business during the short time in which the company has occupied the present offices, speaks well for Bird-Archer products and Bird-Archer business enterprise. It will interest progressive manufacturers to know that the Bird-Archer Company did not recall its sales forces or retrench in any way during recent business depression, and that this continued activity resulted in a practically normal American trade, and an export trade which continued brisk without interruption. The demand for boiler compounds in the Orient especially seems to be very promising, as the Bird-Archer Company now sends out its Asian shipments in five-car lots. These are usually consigned to Pacific Coast agents who reship to the foreign agents and customers. Mr. P. B. Bird, president of the company, also expresses the opinion that American industry must be active in Cuba, as the demand for their boiler compounds on the island has grown beyond all prophecies.

The Bird-Archer Company now has offices or representatives in every city of importance in the country, and also has agents located all over the civilized world.

ROBERT BELDAM'S A.I. 'LASCAR' PACKING.
PATENT METALLIC



A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

MANUFACTURER OF
ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

All Communications to
ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

J. & E. HALL Ltd.
(ESTABLISHED 1785)
23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,
MAKERS OF CARBONIC ANHYDRIDE (CO_2)
REFRIGERATING MACHINERY

REPEAT INSTALLATIONS SUPPLIED TO

HAMBURG AMERICAN LINE	60	P. & O. STEAM NAV. Co.	33	HOULDER LINE, Ltd.	13
UNION CASTLE MAIL S. S. Co.	53	WHITE STAR LINE	33	NIPPON YUSEN KAISHA	13
ELDER DEMPSTER & Co.	48	CHARGEURS REUNIS	25	ELDERS & FYFFES, Ltd.	13
ROYAL MAIL S. P. Co.	45	TYSER LINE	16	CANADIAN PACIFIC Ry.	12

etc., etc.

THE MAKING, BENDING, AND CARE OF SAILS

By ADRIAN WILSON, of Wilson & Silsby.

"While we have made it a point for years to say as little as possible about the cut and making of American racing canvas, we believe the time has come when the protection of our interests makes it necessary that we put something into the hands of our customers that shall give them an intelligent understanding of why we do certain things, and shall help them to carry out, in the use of their sails, the work begun in the sail loft."

This is a paper-bound reprint of the articles by Mr. Wilson, which have recently appeared in INTERNATIONAL MARINE ENGINEERING. The pamphlet consists of fifteen printed pages, 12 x 9, with 38 illustrations.

PRICE, 50 CENTS

FOR SALE BY

WILSON & SILSBY, Rowe's Wharf, Boston, Mass.

AND BY

International Marine Engineering

17 Battery Place, New York

THE PHOSPHOR— —BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand." Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1.
Cheaper than any Babbitt's, and equal to best Magnolia Metal.

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

Telegraphic Address: "PHOSBRONZE, LONDON." Telephone No.: 557, HOP.

THE DELAWARE MARINE SUPPLY MANUFACTURING COMPANY, Wilmington, Del., has recently received an order for supplying all airports and deck lights for the United States torpedo boat destroyers now building.

THE PROVIDENCE STOCKLESS ANCHOR.—This is said to be an improved anchor combining the stockless and mushroom features in one. It is suitable for the smallest skiff or the largest vessel. The claim is made that it can never foul, and that the angle of movement between the flukes and the shank is greater than in any other anchor. This anchor is made by the American Ship Windlass Company, Providence, R. I.

THE "VIXEN" MILLING FILE, made by the National File & Tool Company, the Bourse, Philadelphia, is claimed by the manufacturer to be an invention ranking with the twist drill and the milling cutter. It is claimed that this file cuts from 300 to 500 percent faster than anordinary file and with less effort; that it will work an greased or oily surfaces; that it is self-clearing, even on soft metals; and that it will cut steel or iron, and combinations of wood and metal.

THE INDEPENDENT PNEUMATIC TOOL COMPANY, First National Bank building, Chicago, has appointed H. W. Petrie, Ltd., 131 Front street West, Toronto; 22 Victoria Square, Montreal, and Vancouver, B. C., exclusive agents in Canada for the sale of Thor pneumatic tools and appliances. These agents will carry in their various stores a complete stock of Thor tools and appliances, and will therefore be able to make immediate delivery.

THE H. W. JOHNS-MANVILLE COMPANY, 100 William street, New York, will open a branch in Detroit, at No. 72 Jefferson avenue, under the management of Willard K. Bush. Mr. Bush is well and favorably known throughout that section of the country, having been connected with the Milwaukee branch of the company for a number of years. The company will carry a complete stock of goods at the Detroit branch, so that shipments can ordinarily be made direct from Detroit stock.

SAWDOLET FOR SHIPS' FLOORS.—Mr. C. Clemente, 1722 Oregon avenue, Cleveland, Ohio, the inventor and manufacturer of Sawdolet, has secured contracts to install the flooring on the bulk freighters *John Dunn, Jr., J. H. H. Brown,* the car ferry colliers *Marquette* and *Bessemer No. 2,* on the hospital ship now building for the Department of Atlantic Charities, New York City, and has contracts pending for several other installations. It is claimed for Sawdolet that it is monolithic, impervious to fire, water and dust, and easily and inexpensively cleaned.

THE BIRD-ARCHER COMPANY, 90 West street, New York City, announces that the increased demand for its boiler compound has necessitated appointing representatives as follows: Chicago, the Golden Rule Oil Company, 171 Washington street; Baltimore, the Maryland Railway & Electric Supply Company, 604 Continental building. The Philadelphia office of the Bird-Archer Company has been moved from 56 North Delaware avenue to 119 South Fourth street.

NICHOLSON SHIP LOG SALES.—Barrett & Lawrence, Eastern agents of the Nicholson Ship Log Company, 662 Bullitt building, Philadelphia, have received orders from the Quartermaster-General, United States army, for two No. 1 logs, to be installed in the transports *Sheridan* and *Kilpatrick.* Messrs. Barrett & Lawrence are now equipping the new cruisers *Salem, Chester* and *Birmingham* with the Nicholson log, and have been requested to furnish proposals for equipping the battleships *Idaho* and *Mississippi.*

HOW TO INCREASE TOWING PROFITS.—The American Ship Windlass Company, Providence, R. I., states that by using a Shaw & Spiegle patent automatic steam towing machine and steel hawsers, the cost of manilla hawsers saved during the life of one steel hawser will generally pay for the towing machine, which is the only one adopted by the United States government, and the only one ever used for towing oil barges across the Atlantic and around Cape Horn from New York to San Francisco.

OIL FIRING ON THE BATTLESHIPS *North Dakota* AND *Delaware.*—The Schuette & Koerting Company, 12th and Thompson streets, Philadelphia, has contracted with the United States Navy Department to equip the battleship *North Dakota,* now building at the Fore River Shipbuilding Company's yard, and the *Delaware,* which the Newport News Shipbuilding & Dry Dock Company is building, with the Koerting patent oil-firing system. This system is in successful use in the German and English navies, the new British ships of the *Dreadnought* class being thus equipped. A catalogue and full description of the system may be obtained upon application to the manufacturers.

THE SMOOTH-ON MANUFACTURING COMPANY, 572 Communipaw avenue, Jersey City, N. J., has opened offices at 61 North Jefferson street, Chicago, Ill.; 20 Sacramento street, San Francisco, Cal., and 8 White street, Moorfields, London, E. C.

C. S. KIESSLING, who has been employed in the general offices of the American Steam Gauge & Valve Manufacturing Company, of Boston, for several years, has been transferred to the Chicago office, and will have charge of the order department.

FREE—A LARGE CAN OF GREASE, AN ENGINEER'S CAP and a fine brass grease cup. These articles will be sent absolutely without charge to any engineer who will fill out and mail to the Keystone Lubricating Company, Philadelphia, Pa., the coupon appearing in the company's advertisement in this issue of INTERNATIONAL MARINE ENGINEERING on the front cover.

LACLEDE-CHRISTY CLAY PRODUCTS COMPANY, St. Louis, Mo., has acquired the business, property and good will of the Jamieson French Fire Clay Company, Lake Junction, St. Louis County, Mo. Mr. H. K. Lackland, formerly secretary and general manager of the latter company, will be associated with the Laclede-Christy Company as manager of its high-grade clay department.

THE PITTSBURG STEEL SUPPLY COMPANY has recently been appointed agents for the Pittsburg district, representing the American Steam Gauge & Valve Manufacturing Company, Boston, Mass. The officers of the Pittsburg Steel Supply Company are all experienced men and have a thorough knowledge of the requirements of the manufacturing concerns throughout greater Pittsburg.

SCHUTTE & KOERTING COMPANY, Twelfth and Thompson streets, Philadelphia, Pa., announce that in order to meet the demands of engineers it has fitted the company's extra heavy hard bronze valves with renewable seats, made of superior hard bronze, which will be supplied at low cost. These valves are made extra heavy for pressures up to 250 pounds. Those interested should write for a catalogue.

HOISTING MACHINERY is made by the Brown Hoisting Machinery Company, Cleveland, Ohio. "We make a specialty of machinery for the rapid and economical handling of coal, coke, etc., and have equipped a great many gas and electric light companies' plants with machinery for this purpose. A few illustrations will be found in the company's catalogue showing some of the types of machines we have supplied. The well-known 'Brownhoist' fast plants for unloading directly from boats, the unloading and storing bridges, electric man-riding grab-bucket trolleys, overhead traveling cranes, etc., are in use at many of the largest plants in this country. The 'Brownhoist' locomotive grab-bucket crane is a splendid tool for most plants, and we wish to call special attention to its possibilities. Not only can these cranes be used to unload or rehandle coal or coke, but they can be used with a bottom block in the handling of miscellaneous loads. The cranes can also be used to switch cars around the yard. We also make a specialty of coke pushers, coal and coke storage bins, grab buckets, larries and automatic dumping tubs. This pamphlet is simply to bring our machinery to your attention, and we ask that you write us for full information on any type of machine that you may be interested in. We should like to submit plans and specifications on machines best suited for existing conditions, and will be pleased to do so upon receipt of request."

MARINE
GAS PRODUCERS

For any make of FOUR CYCLE ENGINE.

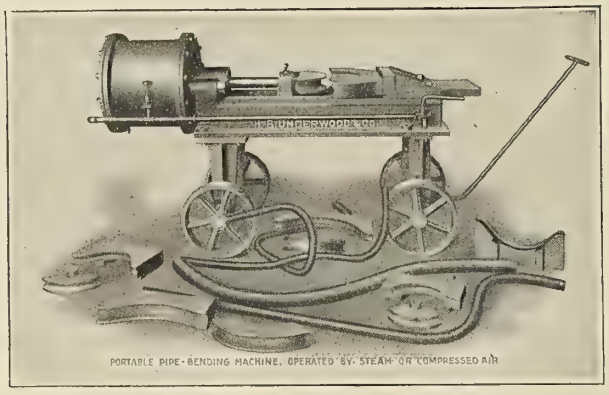
Uses small anthracite coal.

In sizes from 17 to 100 H.P.

THE MARINE GAS PRODUCER CO.

941 EXCHANGE BLDG. BOSTON, MASS.

PORTABLE
PIPE BENDING MACHINE



OPERATED BY STEAM OR COMPRESSED AIR

WILL MAKE A RIGHT ANGLE BEND IN 2" PIPE IN 2 MINUTES

This pneumatically operated machine bends cold pipes to the desired radius without filling and heating and it neither flattens nor injures the work in any way. Capacity is for pipe from ½" to 2½" diameter, in any standard radius. Special dies can be had to order.

H. B. UNDERWOOD & CO.

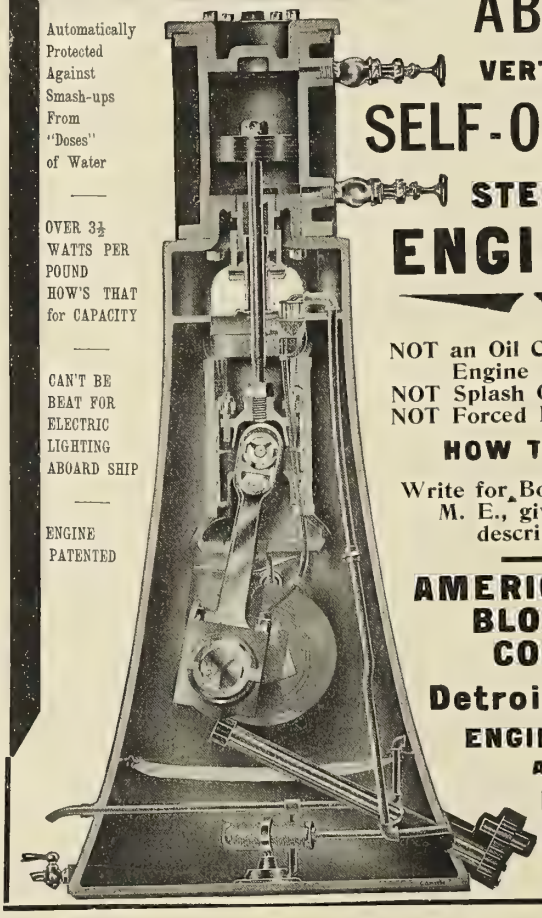
1021 Hamilton Street PHILADELPHIA, PA.

Automatically Protected Against Smash-ups From "Doses" of Water

OVER 3½ WATTS PER POUND HOW'S THAT for CAPACITY

CAN'T BE BEAT FOR ELECTRIC LIGHTING ABOARD SHIP

ENGINE PATENTED



"ABC"
VERTICAL
SELF-OILING
STEAM
ENGINES

NOT an Oil Cup on the Engine
NOT Splash Oiling
NOT Forced Lubrication

HOW THEN?

Write for Book No. 232 M. E., giving full description

AMERICAN BLOWER COMPANY
Detroit, Mich.
ENGINEERS AND MANUFACTURERS

BUSINESS NOTES

GREAT BRITAIN

THE SUEZ CANAL.—The draft of ships which can pass through the Suez Canal was raised at the commencement of the year to 28 feet 6 inches; in four or five years it will be further increased to 37 feet. The width of the canal will also be carried to 148 feet. The transit revenue of the Suez Canal Company declined in the first five months of this year to 1,860,097*l.*, as compared with 1,980,001*l.* in the corresponding five months of 1907.

TRIAL TRIP OF THE PASSENGER AND FRUIT STEAMER *Cartago.*—This steamer left Belfast harbor and, after a short cruise in the Lough for adjustment of compasses, proceeded to Glasgow to take on board bunker coals and stores, then steamed down the Clyde to undergo speed trials on the Skelmorlie measured mile course, and between the Cloch and Cumbrae lights. The trials consisted of a series of runs over the measured course, and extended runs between the lights. The auxiliary machinery was also tested, and under all conditions the vessel and her equipment gave the utmost satisfaction to all concerned, an average speed of 14¾ knots having been attained. The *Cartago* is the first of a trio of steamers being built and engined by Messrs. Workman Clark & Co., Ltd., for the Tropical Fruit Steamship Company, Ltd., Glasgow.

LAUNCH OF NEW RED STAR LINER *Lapland.*—The launch of the steel screw steamer *Lapland,* which took place at Belfast, is an event of considerable importance to shipping and international commerce. The *Lapland,* the latest and most notable addition to the Red Star Line, has been constructed at Messrs. Harland & Wolff's yard. She will be by far the largest vessel sailing under the Belgian flag, being over 620 feet long by 70 feet beam, and 50 feet deep. Her tonnage will be about 18,000, and displacement about 30,000. The vessel is being built in accordance with the requirements of the British Board of Trade and the American and Belgian laws for passenger vessels. The *Lapland* is designed to carry a large quantity of cargo, and a large number of passengers—first, second and third class—for all of whom accommodation on the most approved principles will be provided—in fact, the new vessel in every respect will represent the highest excellence of the shipbuilder's art.

TRIAL TRIP OF A TRUNK STEAMER.—The steamship *Leeds City,* built by Messrs. Ropner & Sons, Ltd., of Stockton-on-Tees, recently made her official trial trip in the Tees Bay. The steamer has been built to the order of Messrs. W. R. Smith & Son, Cardiff, and is fitted with the builders' patent improved trunk deck. She has been built to the highest class in the British Corporation Registry. The vessel is 370 feet in length, and has a deadweight carrying capacity of about 7,200 tons. Her outfit is thoroughly up-to-date, and includes stockless anchors, quick-warping steam windlass, steam steering gear amidships, and powerful screw gear aft, whilst she is particularly well equipped with derricks and winches of the most modern type in order to facilitate the loading and discharging of cargoes. The accommodation for captain and officers is provided for at the after end of trunk, the engineers being housed amidships, and the screw in the forecastle as usual. Her engines are of the triple expansion type of about 1,850 indicated horsepower, by Messrs. Blair & Coy, Ltd., of Stockton. The vessel has been built under the superintendence of the managing owner, Mr. W. R. Smith, and the commander, Captain W. Story, and on trial she behaved herself in a thoroughly satisfactory manner.

MARINE SOCIETIES.

AMERICA.

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
29 West 39th Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
St. Nicholas Building, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

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Franklin J. Houghton, Port Richmond, L. I., N. Y.

LUSTROGEN is the name of an aluminum paint put on the market by Messrs. Clemens, Marshall & Carbert, of Hunslet Road, Leeds, and which is not affected by sea water, atmospheric influence, grease, or petrol. It has been stoved to an enormous degree without effect. It does not turn black, and on either outside or inside work retains its brilliancy indefinitely. Has an enormous covering capacity—between 900 and 1,000 square feet to the gallon—thus making the expense to the user very small. It dries very quickly, and is perfectly hard when dry. For heating installations, radiators, gas stoves, steam pipes, fire stoves, etc., "Lustrogen" is said to be the best paint for protection and decorative effect combined. Forming a very thin metallic coating it throws off the maximum heat, which is a very important matter in large installations.

GRAPHITE PAINTS
The Life Preservers of Iron and Steel.
GRAPHITE PIPE JOINT PASTE
Makes Perfect Joints and Prevents Corrosion.
FREE SAMPLE ON APPLICATION TO
G. F. HOPKINS & Co.,
112, WESTMINSTER BRIDGE ROAD, LONDON.

SPECIFY
Silley's Patent Smoke Box Door
FASTENINGS
4,000 Fitted During 1906-7
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BLOW
RAINBOW
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Will hold the highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Peerless Rubber Manufacturing Co.

16 Warren Street and 88 Chambers Street, New York

Detroit, Mich.—16-24 Woodward Ave.
Chicago, Ill.—202-210 South Water St.
Pittsburg, Pa.—425-427 First Ave.
San Francisco, Cal.—131-153 Kansas St.
New Orleans, La.—Cor. Common & Tchoupitoulas Sts.
Atlanta, Ga.,—7-9 South Broad St.
Houston, Tex.—113 Main St.
Sole European Depot—Anglo-American Rubber Co., Ltd., 58 Holborn Viaduct, London, E. C.
Paris, France—76 Ave. de la Republique.

Kansas City, Mo.—1221-1223 Union Ave.
Seattle, Wash.—Railroad Way & Occidental Ave.
Philadelphia, Pa.—220 South Fifth St.
Louisville, Ky.—111-121 West Main St.
Indianapolis, Ind.—16-18 South Capitol Ave.
Omaha, Neb.—1218 Farnam St.
Denver, Col.—1621-1639 17th St.

FOREIGN DEPOTS

Johannesburg, South Africa—2427 Mercantile Building.

Vancouver, B. C.—Carral & Alexander Sts.
Richmond, Va.—Cor. Ninth and Cary Sts.
Waco, Texas—709-711 Austin Ave.
Syracuse, N. Y.—212-214 South Clinton St.
Boston, Mass.—110 Federal St.
Buffalo, N. Y.—379 Washington St.
Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.

Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS.

AMERICA

The Massachusetts Fan Company, Watertown, Mass., has issued an attractive booklet entitled "Davidson Ventilating Fans." The booklet describes pulley fans and many types of electric fans driven by standard motors of various makes. These are applicable for the economical movement of large volumes of air at moderate pressures.

One of the handsomest publications we have ever seen is *Appliances for Manipulating Life Boats on Sea-Going Vessels.* This volume has just been published by the Welin Quadrant Davit Company, 17 Battery Place, New York City. The book is leather-bound and there are nearly 200 pages, 14 by 10. The volume is profusely illustrated with nearly 140 lithographs, many of them being full-page illustrations of well-known vessels belonging to the merchant marine and navies of various countries, all of which have been fitted with the Welin quadrant davits. Nearly 200 vessels are equipped with these davits at the present time. The principal requirements of an ideal system of davits are: First, the boat must in all circumstances and in every position be under control; second, a moderate list of the ship must not prevent or appreciably retard the manipulation of the boat; third, the mechanism must be of the simplest possible nature, with all of its parts easy of access; fourth, the manner of manipulating the davits must be such as to preclude any necessity for expert training and all possibility of confusion in cases of accident; sixth, cost, weight and deck space occupied are all matters which must be taken into account. The Welin quadrant davit, according to the claims of the manufacturer, who, judging from the numerous testimonials from well-known shipping companies, is justified in his claims, meets all the above-mentioned requirements. This davit is minutely described and illustrated in this volume, and a complete history of the numerous types of davits which have been invented from time to time is also given and is illustrated with a large number of diagrams. Among the handsome full-page lithographs are illustrations of R. M. S. *Cedric*, the Dutch battleship *Tromp*, S. S. *Venezia*, S. S. *König Wilhelm II.*, S. S. *La Provence*, turbine S. S. *Maheno*, turbine S. S. *Viper*, S. S. *Londonderry*, S. S. *Princesse Elizabeth.*

"Electric Heating" is the title of an illustrated catalogue of 120 pages published by the Simplex Electric Heating Company, Cambridge, Mass. The compactness and simplicity of this company's heating devices render them especially useful on board ship. The Simplex stateroom radiator is made for any voltage to order up to 250, and the statement is made that because of the constant dampness the enamel insulation which seals the resistance prevents the destructive results sure to follow any other form of construction. The company fully guarantees these radiators, and states that it has had hundreds in constant service on board ship for several years, but has never been called upon to replace or repair any.

Franklin air compressors are described in illustrated catalogue 26, published by the Chicago Pneumatic Tool Company, Fisher building, Chicago, Ill. "Franklin compressors when first introduced, about eight years ago, at once found favor among users of compressed air because of their sound design massive yet graceful proportions, and the exceptionally high engineering plane upon which their lines were based. From the outset these machines took an established place, a step in advance of older machines of their class, and marked a new era in the production of highly efficient air-compressing machinery. In their design we have combined correct mechanical practice with the most recently developed knowledge of the principles of air compression. In general, we have followed the most approved steam engine practice, working along original lines only in details vital to economical air compression, avoiding any tendency to complicated mechanism, but providing unequalled strength and endurance. These compressors are built in over one hundred sizes and styles, suitable for operating pneumatic chipping, calking, riveting and stone-cutting hammers, drills, reamers, sand rammers, wood-boring machines, flue cutters, painting machines, straight lift and motor hoist, stone surfacing machines, and all classes of compressed air equipment in machine shops boiler shops, railroad shops, shipyards, stoneyards and in bridge and building construction work pumping natural or artificial gas, driving rock drills, coal cutters, pumps, locomotives, hoisting engines and other machinery in mines, tunnels and quarries; operating railway signals, testing and charging air-brake equipment, sinking caissons, displacing and agitating chemicals, pumping water by compressed air, and for every other purpose in which compressed air is employed."

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Telephone—1998 HOP.

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Bulletin 159 of the engineering series published by the B. F. Sturtevant Company, Hyde Park, Mass., is devoted to the description of type H electric motors, which are designed especially for direct connection with Sturtevant blowers and exhausters. They are of the four-pole type, and are said to have operating characteristics which insure their fulfilling the requirements of modern service with a minimum of repairs and attention. They are made open, semi-enclosed, or enclosed, according to the conditions of installation.

The Parmelee pipe wrench, made by the Parmelee Wrench Company, Chicago, Ill., is said by the manufacturer to present only a smooth bearing to the pipe, gripping it with equal pressure all around, taking positive hold when force is applied to the handle. The greater the power the stronger the grip. It is said to hold oily or galvanized pipe and smooth rods without slipping, and it is claimed that it will not scratch the finest nickel-plated tubing; that it will make or break the tightest steam or ammonia joint without chewing or crushing the pipe, remove the most stubborn close nipple without injuring the threads, and that it can be operated easily in coils or other close quarters where space is limited. A testimonial of a well-known water-tube boiler company states, "We can easily turn pipes spaced so closely that no other wrench could possibly be used, and the fact that they grip immediately without slipping makes it possible to pull up the pipe in the closest corners."

The White Star oil filter, made by the Vandyck, Churchill Company, 91 Liberty street, New York, is described by the manufacturer as follows: "The White Star oil filter is an inexpensive device of high efficiency for purifying used-oil from machinery bearings so that it may be fed again to the rubbing surfaces and thus be used over and over until actually worn out in the work of lubrication. Usually more than half, and often from 75 to 90 percent of the oil fed to bearings, passes through and escapes with the oily drips, going entirely to waste unless a White Star filter be provided for reclaiming the good oil from the water and dirty residue. In any power plant, small or large, the oil bill is an important item of expense. In even the smallest plant, therefore, a reduction of 50 percent or more in this item is an economy of no mean proportion; in the larger plants it mounts to high totals in dollars of monthly and annual savings. The essential requirements for a thoroughly good oil filter are that it be: 1, rapid in action; 2, simple in operation; 3, ample in capacity; 4, perfect in performance; 5, easy to clean; 6, cheaply maintained; 7, substantial in construction; 8, attractive in appearance; 9, readily installed; 10, reasonable in cost. This decalog of virtue in oil filtration the White Star filter observes with utmost exactitude—in both manner and method far excelling any other apparatus ever offered for similar service."

The Consolidated pop safety valve, Board of Trade, marine type, is described in an illustrated catalogue published by the manufacturer, the Consolidated Safety Valve Company, 85 Liberty street, New York City. "Combining new features developed by the high-duty demands of modern boiler practice with those fundamental principles of construction which made this, the original pop safety valve, famous, we present a valve which marks a long step in advance of any previously placed upon the market. The changes in design embodied in this valve are results of our experience, which is that of the greatest producers of safety valves in the world. They are the culmination of a prolonged series of tests which have proven every one of the changes made a distinct improvement. The new form of construction of this valve gives it a much greater relieving capacity than that of any other valve ever produced. Comparative tests have proven it to possess an advantage in this respect, over all other makes of the same size, ranging as high as 350 percent. Consequently no other valve of similar size will render the service of a Consolidated valve, and the Consolidated will show a relieving capacity which other makes cannot equal save with considerably larger sizes of valves. This proves that a pop safety valve should not be purchased on the basis of its valve area alone, but that consideration should be given to the amount of lift provided for the feather (or disk); and more important still, to the liability of failure to maintain the required lift when the valve is in action, due to its faulty design or construction. The amount of steam released determines the capacity of a valve; the methods employed in releasing the steam govern its reliability. The superior relieving capacity of the Consolidated is due to the fact that its sustained lift is much greater than that of any other valve made. The high sustained lift of the Consolidated allows for the passing through of a much greater volume of steam than is possible with the construction of any other valve of corresponding size."

STARRETT TOOLS

AND INSTRUMENTS OF PRECISION

are described in our 232-page catalogue, No. 18-L. This is a very complete and fully illustrated book, and a copy should be in the hands of every user of such instruments. Many new tools are shown by the more than 300 illustrations, and some additions to sizes of former tools have been made. A number of improvements in design will be noticed, and several more pages of useful tables are given than in earlier editions of the catalogue. There are a few changes in prices. The arrangement has been carefully revised, every tool indexed both by name and number, and no pains have been spared to make this the most complete, handiest, and most attractive tool catalogue ever issued. A glance at the table of contents will indicate its wide scope. Among the many instruments of which this company makes a specialty are calipers and dividers of all sorts, center punches, gages of every description, micrometers, rules and squares of all kinds, steel tapes, and, in fact, almost every kind of instrument of precision. Every tool sent out by us is warranted to be accurate. If, by chance, any tool should prove to be defective in material or workmanship, it will be immediately replaced.

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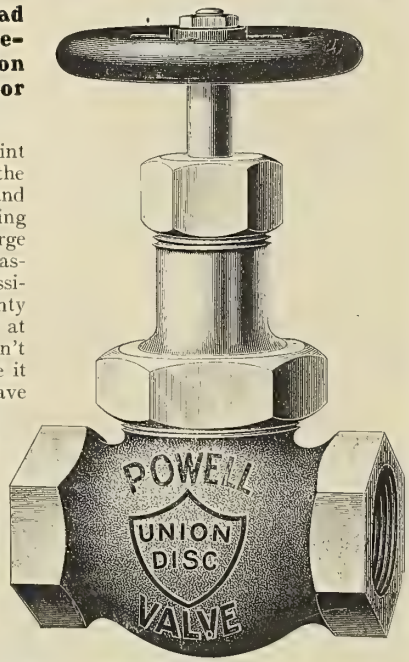
It will pay you to read and digest this descriptive construction of a most Superior Valve.



The patent ground joint connection between the faces of the body neck and bonnet, and the clamping of the two by the first large Hexagon Swivel Nut, assures absolutely all possibility of a Blow-off; plenty of strength and metal at that point. You don't need red lead to make it steam tight after you have taken it apart for inspection or repairs, the steam doesn't reach the threads.

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All Change Does Not Mean Progress, But all Progress Means Change

IF you are only familiar with oil and grease lubrication, well—look out for ruts. What is the benefit derived from adding Dixon's Flake Graphite to oil or grease? Hundreds of successful engineers testify that it lessens friction, prevents cutting, saves lubricant. Can you answer this question from "first-hand" experience?

Write for free booklet 58-C and a sample.

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The only Vibration-Proof Electric Thermostat in existence. Will absolutely maintain accurate Day and Night Temperatures in electrically heated rooms. It saves from 40 to 50% of current when compared with heaters not regulated. This is proven by records taken on board of modern trans-Atlantic liners. We will submit these records to anyone interested.

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"Helps—Don'ts for All Who Grind" is a pamphlet published by Norton Company, Worcester, Mass., telling how to select a grinding wheel, how to mount it, true it, what speed to use, and in addition many valuable general suggestions.

The fourth chapter of the article by W. H. Wakeman, on "Preventing Corrosion of Steel Machinery," is published in the August issue of *Graphite*, issued by the Joseph Dixon Crucible Company, Jersey City, N. J. This chapter deals especially with pumps. Back numbers of this series can be supplied to all interested upon application to the company.

The vertical self-oiling steam engines made by the American Blower Company, Detroit, Mich., are described and illustrated in book No. 232 M. E., a free copy of which will be sent to any reader mentioning this magazine. There are no oil cups on this engine, no splash oiling, and no forced lubricating. The engine is said to be automatically protected from smash-ups from "doses" of water, and the claim is made that it is the best engine on the market for electric lighting on board ship.

Portable heaters are described in a handsomely illustrated catalogue issued by the Rockwell Furnace Company, 26 Cortlandt street, New York. Crank expansion for taking out and replacing pins in engine work (a straight 8-inch pin, tight fit, has been replaced in one hour), and heating hubs of propellers to loosen them are among the uses of these heaters, and stern posts and shoes distorted can be heated and straightened without removing. Plates that buckle in construction work are easily adjusted with a little heat at the buckling point. A 14-inch shaft has been sufficiently heated for straightening with two burners in two hours.

The Weston instruments, alternating and direct-current types, are described in an illustrated booklet published by the Weston Electric Instrument Company, Waverly Park, N. J. Part I. of this booklet deals with the Weston alternating-current voltmeters and ammeters, models 151 and 156, and Part II. with the Weston portable alternating-current voltmeters, ammeters and milli-ammeters, models 155. The statement is made that this company's portable instruments are standard the world over, and that their laboratory and stationary voltmeters and ammeters are unsurpassed for extreme accuracy and lowest consumption of energy.

Boring mills are described in a catalogue issued by the Niles-Bement-Pond Company, 111 Broadway, New York. This catalogue is printed and illustrated in the same handsome style as all catalogues issued by the company, and is full of such excellent half-tones that further description of the machines illustrated is almost unnecessary. The company has had fifty years' experience in building boring mills, and incorporates many minor points which it is impossible to cover in specifications, but which add much to the value of a machine. The company has designed a special line of tire mills for turning locomotive and car wheel tires. Besides being applicable to tire work, these mills can be used to advantage in any shop where the requirements are especially severe.

Indicators are described and illustrated in a catalogue published by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston. The catalogue states among many other advantages claimed for the American Thompson improved indicator that it "is by far the most accurate in existence. The errors which usually exist in drawing correct vertical lines with other indicators cannot possibly appear in the limited movement of the pencil in taking diagrams from a steam engine with the American Thompson indicator. The parallel movement of the pencil is secured by a link attached to and governing the lever direct. The pivots of this link are made free from any appreciable lost motion, and will remain so indefinitely; but if any such lost motion should exist, it will affect the integrity of the parallel movement only to an extent equal to it, not three or four times that amount. In other instruments where the parallel movement is affected by controlling the connecting rod, either by a curved slot in it and a guiding roller, or by attaching the link, the parallel movement becomes dependent for its accuracy on the fit of several parts; play in any one of which will cause an uncertainty and probable inaccuracy equal to three or four times the amount of such play. The force required to guide the lever of the American Thompson improved indicator in its parallel movement is received on the pivots of the link alone. In cases of the slot and rolled device, this guiding force is received in several rapidly moving surfaces and multiplied in amount of leverage. The same is also true to a considerable extent where the link is attached to the connecting rod."

Vertical gas engines for electric lighting, pumping and general power purposes are described and illustrated in catalogue A published by the Bruce-Meriam-Abbott Company, Cleveland, Ohio.

TRADE PUBLICATIONS

GREAT BRITAIN

The price list of packings and pipe and boiler coverings issued by Robert Beldam, 79 Mark Lane, London, E. C., lists high-pressure metallic packings, low-pressure and pump metallic packings, "Tauril" patented high-pressure jointing, miscellaneous rubber and asbestos goods, "Garlock" packings for steam, water and ammonia, "Wilpaco" hydraulic packing, "Halata" belting, leather hose, etc.

Metallic packings are described in a 70-page illustrated pamphlet published by Lancaster & Tonge, Ltd., Pendleton, Manchester. This catalogue states that "The Lancaster" patent metallic packings have been supplied to the British and many foreign navies and to the principal engineers in Great Britain and abroad. Appended in book form will be found the experience of users. The packings they refer to were all supplied on approval and guaranteed, and the company still adheres to this feature of its business.

Vaughan & Sons, Ltd., Manchester, have issued a beautifully printed and illustrated catalogue on overhead traveling cranes. This company for the past twenty years has devoted its energies almost exclusively to overhead traveling crane construction, beginning with the hand-operated travelers and following on to the shaft-driven and rope-driven types. The company already had experience in the requirements of this class of work when, as one of the pioneers, it introduced the application of electricity for operating such cranes in 1892. A section of this catalogue illustrates typical examples of the company's multi-motor overhead electric traveling cranes and classes of work upon which they are employed in shipyards, locomotive works, etc.

Archibald H. Hamilton & Company, Possilpark, Glasgow, make the following statements regarding their "Deep-Sea" anti-corrosive and anti-fouling compositions. Deep-Sea black: "This composition is prepared for use on vessels trading partly in fresh and partly in salt water; it has been in constant use for years on several cross-channel steamers and others trading to Continental ports with satisfactory results. It dries very rapidly, and two coats can be given in one tide, thus effecting a saving in steamer's time also of dry dock and slip dues. Being a strong anti-corrosive it forms a splendid and tenacious preservative for first coating new metal. Deep-Sea red: This composition having extra strong anti-fouling properities is specially adapted for use on vessels trading in tropical waters, and being at the same time anti-corrosive it has no deleterious effect when used for first coating. It drys very quickly, and allows of two coats being applied in one tide, thereby also showing a saving in time, dues, etc. Deep-Sea boot-topping (various shades): Combines the best properties of the red and black, and stands very effectively the action of wind and water. It is scarcely affected by the strongest brine or ammonia water from the decks of cattle steamers. Deep-Sea hold paint: This paint is specially manufactured for use in ships' holds, and is absolutely impervious to moisture. It does not blister or crack, and being elastic is not easily fractured by falling material, and is unaffected by bilge water. Prepared either in black, red or gray. Black is specially suitable for holds and bulkheads of steamers engaged in coal-carrying trade. Deep-Sea top side enamel: Will withstand the combined action of sun, air and sea water better than ordinary paint used for this purpose. A special feature of our enamel is its absolute freedom from the discoloration which is so general among ordinary top side paints. Gives a splendid surface, which it retains for a long period. Prepared either in black, green or gray. Deep-Sea yacht compositions: These are prepared from the finest fast colors, extra ground, and are intended for use on racing, cruising and steam yachts. Deep-Sea specialties: Are all anti-corrosive, and can be supplied packed as follows: In 2, 5 or 10-gallon drums (drums returnable), and 20 and 40-gallon casks, packages free. Samples and prices on application."

ARMSTRONG SOLID BLOCK LIFE PRESERVERS
STANDARD FOR MATERIAL AND WORKMANSHIP
Each Preserver inspected and stamped by U. S. Inpector
YACHT FENDERS—BUOYS
ARMSTRONG CORK COMPANY
Boston New York Philadelphia Pittsburgh Chicago
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GRAPHITE PAINTS
The Life Preservers of Iron and Steel.
GRAPHITE PIPE JOINT PASTE
Makes Perfect Joints and Prevents Corrosion.
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The best filling and lining Metal in the market.
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Superior to Best White Brass No. 2, for lining Marine Engine Bearings, &c.
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Telegraphic Address: "PHOSBRONZE, LONDON." Telephone No.: 557 HOP.

BUSINESS NOTES
AMERICA

Isaac G. Johnson & Company, Spuyten Duyvil, New York City, state that their Monel is a non-corrosive metal peculiarly suitable for use in connection with high-pressure steam, superheated steam, salt water, acid water, alkali water and bad mine water, and is preferable because of its high percentage of nickel and the absence of iron, tin and zinc. Monel metal, according to the manufacturer, meets the requirements for valve bodies, valve seats, valve stems, and for pump cylinders, pump pistons, pump linings, pump valves and for all kinds of fittings subjected to corrosive and disintegrating elements. It is being used by the United States navy, shipbuilders, and the best valve and pump manufacturers. Engineers are said to be recommending it extensively.

The American Manganese Bronze Company, 99 John street, New York, U. T. Hungerford, president; W. A. Locks, secretary and treasurer, announce the completion of the works at Holmesburg Junction, Philadelphia. The buildings are of reinforced concrete and steel framework construction, with brick curtain walls, and consist of melting plant and foundry, metal storehouse, core shop and office, with complete chemical and testing laboratories, light and power plant and machine shop. The main building is equipped with a 10-ton Niles electric traveling crane, which together with a 1-ton electric hoist serves the entire plant. Special attention has been given to light and ventilation. The plant is equipped with pneumatic tools for the cleaning of castings, and its 600 feet of siding running the entire length of the plant insures economical handling of raw material and shipments. Nothing has been omitted in the construction of this plant that would tend to make it thoroughly modern and up to date in every particular. The products of the American Manganese Bronze Company comprise ingots, billets, forgings, rods and sheets, together with both large and small castings, their facilities permitting them to supply bronze castings up to 20,000 pounds each. In addition to their special Spare's manganese bronze, Spare's white bronze and Spare's hydraulic bronze alloys, the company also make standard United States government compositions and other high-grade alloys designed to meet the most severe engineering requirements.

The semi-annual report of the Chicago Pneumatic Tool Company, Fisher building, Chicago, for the six months ending June 30, shows a net profit for that period of $102,835.53. Notwithstanding the late business depression the company has reduced its indebtedness, included in mortgage assumed, bills payable and accounts payable, $123,000, and in addition has met all of its fixed charges and has added $18,085.53 to its surplus account.

Columbia University will offer at night during the years 1908-09 twenty evening courses especially adapted to the needs of technical and professional workers. This includes work in applied mechanics, applied physics, architecture, electricity, fine arts, industrial chemistry, mathematics and surveying and structures. The work begins on October 26, and continues for twenty-five weeks. A full description of the courses is contained in the Announcement of Extension Teaching, which may be obtained on application to the Director of Extension Teaching, Columbia University, New York City.

New Chilean Naval Contract.—Morrison & Company, Valparaiso, Chile, have been appointed sole suppliers to the Chilean navy for a period of five years, the contract covering practically all supplies. Morrison & Company have expressed their intention of giving American manufacturers every opportunity of figuring upon their requirements in this connection, and suggest that manufacturers and general suppliers keep in touch with them. William E. Peck & Company, 116 Broad street, New York city, agents for Morrison & Company, will be pleased to give further information to anyone interested.

Turbine Fans for New Warships.—The Troy (N. Y.) works of the Sirocco Engineering Company are now turning out fans for the forced draft equipment of the United States battleships *Delaware* and *North Dakota*. These fans, fourteen in number for each ship, are 27 inches in diameter, and will be driven by General Electric motors. The installation is noteworthy, for the reason that while the Sirocco turbine fans are in use upon nearly all the big trans-Atlantic liners and in the navies of all the principal European nations, the American navy is now for the first time adopting them on a large scale. The Sirocco Engineering Company is also turning out open fans for the United States torpedo destroyers Nos. 17, 18 and 19, on which the plenum system of draft will be used.

COBBS HIGH PRESSURE SPIRAL PISTON
And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING

IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.
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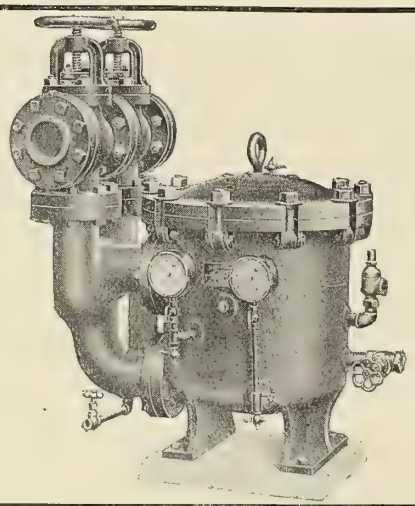
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

BUSINESS NOTES

GREAT BRITAIN

BAKER'S PATENT ROTARY PRESSURE BLOWER, made by the Baker Blower Engineering Company, Stanley street, Sheffield, is described by the manufacturer as follows: "The ordinary fan until recently has been generally used for producing forced combustion in cupolas and other furnaces. But, although the fan may be reasonably effective when a large volume of air is to be set in motion with no perceptible difference of density, yet, as it is wholly unfitted for producing more than a slight variation of pressure in the blast, it is therefore a most ineffective means of supplying blast to cupolas (more especially to large ones) where the varying conditions existing during the process of melting iron require the blast to be supplied under ever-varying pressures, generally far exceeding that attainable by the best fans when running at speeds (regardless of expenditure of power and rapid wear of belts and bearings) dangerously near the strength of materials of which fans are constructed in resisting centrifugal force. If the action which takes place in the interior of a cupola while melting goes on be considered for a moment, it will easily be understood why the blast should be delivered under varying pressures. When the blast is first turned on to the cupola, the small coke, dust, etc., will be cleared away, so that the air thus finding readier passage, it will be found, if observations are taken after some five or ten minutes, that the pressure is considerably reduced. When melting of the iron, however, begins, and as the mass in the interior of the cupola gets into a pasty or semi-fluid condition, greater resistance is offered to the blast; if, therefore, the same quantity of atmospheric air is forced into the interior of the cupola (and this is imperative to produce economical combustion of the fuel) the pressure must necessarily rise. With a fan the air is not forced into the furnace, but the pressure being low, instead of penetrating through the mass of iron and fuel in the interior, it finds its way to a great extent between that and the lining, so that at the time when the resistance is greatest, while the same quantity of air is required for perfect combustion of the fuel, the supply is actually greatly diminished. Hence the great advantage in using a blower that shall measure into the cupola a definite amount of air, and shall continue doing so under all the varying conditions of resistance to its entrance which exists during the operation of melting iron. In a pressure blower in which the air is forced forward by a revolving vane or piston, the whole of the power applied (except the very slight amount absorbed by the friction of the moving parts of the machine) is utilized in producing pressure; and should the outlet from the blower be throttled, the pressure of the blast will continue to rise until the limit of the driving power is reached, when the machine must stop. With a fan, however, the case is widely different; it must be run at a very high velocity, probably ten times that of a pressure blower, to impart sufficient momentum to air, a substance possessing only a very slight specific gravity; thus, there is very considerable loss of power from the friction of the bearings when run at such extreme speeds, as well as from the power absorbed in continually changing the direction of the belts, which take short turns round very small pulleys, and, after all, but a portion of the air thus acted on is really forced forward. Should the outlet from the fan be partially throttled, there will be but a very slight increase of pressure in the blast while the fan continues to run at the same speed; and if the outlet be entirely closed the fan will still continue running, absorbing much power but producing no practical effect. There is absolutely nothing positive in the action of a fan. The vanes merely impart to the particles of air a momentum corresponding to their velocity, but as resistance is opposed to the blast, the volume is diminished in the ratio of the resistance, till a point is reached when the momentum and resistance are equal, and when no air whatever is discharged. The results of the operation of a fan are therefore varied by every contingency that varies the resistance. The Baker pressure blower was tested in competition with Root's blower by the committee of the Franklin Institute Exhibition, Philadelphia, in October, 1874, and the silver medal and diploma was then awarded to it by the committee, on the ground of superior merits. In competition with the Root's blower at Philadelphia again in 1875, it was awarded the Scott legacy premium and medal; and in the same year at the Pomona Exhibition of Machinery in Manchester it was awarded the grand gold medal, the Root's blower having had awarded to it the silver medal. The Baker blower is not only well adapted for supplying blast to cupolas and smiths' fires, but it is eminently fitted to be used as an exhauster, or for moving hot gases.



NO OIL IN THE BOILERS

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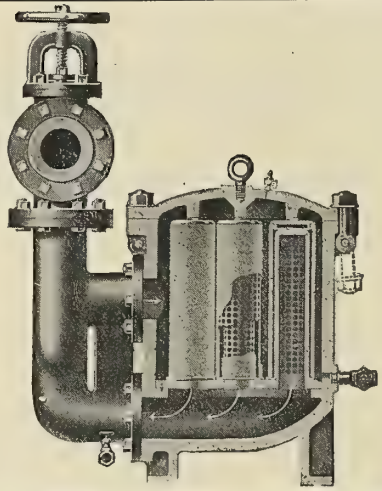

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etc., etc.

Ship Boilers.—Directions have been given that in ships fitted with Babcock & Wilcox boilers, and also in ships having combined installations of water-tube and cylindrical boilers experiments are to be made with a view to determining the least amount of lime required to maintain the water in the boilers slightly alkaline.

Among the many new ships equipped with Welin quadrant davits, made by Axel Welin, 5 Lloyd's avenue, London, E. C., are the following: Union Steamship Company of New Zealand's *Makura*, 11 sets; Elder Dempster & Company's *Leopoldville*, 10 sets; Howard Smith Company's *Mourilyan*, 4 sets; Adelaide Steamship Company's *Koombana*, 7 sets; Entre Rios Railway Company of South America, in ferry steamer *Maria Parera*, 2 sets; Great Eastern Railway Company's *Munich*, 8 sets; Pacific Steam Navigation Company's *Orcoma*, 14 sets.

Institute of Marine Engineers.—The Denny gold medal, provided for by the late Peter Denny, LL. D., and awarded each session for the best paper read before the Institute of Marine Engineers, has been awarded to Mr. Robert Elliott, B. Sc. (member), of Greenock, whose paper on "Repairs to Ships" (Part I., Repairs to Hulls, and Part II., Repairs to Machinery), read Oct. 28 and Nov. 18 1907, has been adjudged the most meritorious of the papers read during session 1907-1908. The paper embodies a great number of Mr. Elliott's observations during a long experience as a surveyor, supervising vessels of every description and encountering defects in almost every conceivable form, and makes a work of much practical utility.

Recent indications point to an early start being made with the erection by the Admiralty of the proposed torpedo factory at Greenock, in connection with which a torpedo-testing range is to be established in Loch Long. It has just been arranged that the building of the factory will be carried out by Robert Neill & Sons, Manchester. Representatives of that firm have inspected the site at Battery Park, and paid a visit to the quarry at Gourock, from which, it is understood, the necessary stone will be obtained. The Admiralty also have recently come to an agreement with the Greenock Corporation for the supply of electricity, both for lighting and power purposes. The buildings will be generally two stories in height. The ground occupied will be about 10 acres, and in the workshops will be constructed special classes of torpedoes to meet the most up-to-date requirements of modern naval warfare. Ready and ideally efficient means of testing these will be provided by the Loch Long trial range not far distant. The work of laying down the factory, it is understood, will be completed in about eighteen months and its establishment will cause the transference from Woolwich to Greenock of at least 700 expert workmen.

S. A. Ward & Company, Sheffield, have recently fitted throughout with their manufactures the steamship *Baron Gautsch* and steamship *Prinz Hohenlohe*, sister ships, belonging to the Austrian Lloyd Steam Navigation Company, of Trieste, which had specially designed four-cylinder triple set of engines, and the firm's specialties gave satisfaction to the owners. The Ward patent packings reduced friction on the rods to a minimum, as they are not supported by the rod in any way. The special feature of the firm's patent equilibrium piston rings is that although a spring ring there are no loose pieces of extra springs to break, as the ring is a spring in itself, and as wear takes place it allows the ring to adjust itself automatically. The segments of the packings are of white metal, and the mixture of the metal is arranged to suit each of all the various presses and temperatures, as what suits one pressure is not suitable for another. That is, segments made for a high-pressure rod would not suit if put to work on a low-pressure rod; each packing is arranged to suit each pressure, etc.; within certain limits, of course, they become very slightly plastic under heat and pressure. The packing segmental ring is divided angularly, and the end of the section is drilled for a short distance up, to reduce undue friction. This allows the joints to yield by a long, slow process, which is just enough to keep most of the pressure of steam from exerting its full force upon the sections and through them direct onto the piston rod, which is common to all other packings; at the same time the joints are always hard up and in close contact, so that it is quite impossible for anything to get past them, the cone hoop, with spring behind, keeping them in position against the cover face. The sections will wear away almost to nothing without being touched. No fitting is necessary, as they are perfectly true when turned out of the works. All that is necessary to insure success is to be sure that the rods are perfectly true, and that sand and dirt are not introduced into the stuffing-box.

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TRADE PUBLICATIONS.

AMERICA

The supplement issued by Welin Quadrant Davit, Inc., 17 Battery Place, New York City, to the volume described on page 7 of our October issue, contains a number of handsome full-page lithographs of the steamers which have been fitted with the Welin quadrant davits since the publication of the former book. Among these are the *Colon,* of the Panama Railroad & Steamship Company; steamboat *Wickham,* of the Department of Charities, New York City, and the turbine liners *Tenyo Maru* and *Chiyo Maru,* of Toyo Kisen Kabushiki Kaisha.

The Revere Rubber Company, Boston, Mass., has just issued a handsome catalogue of sixty pages, containing many fine illustrations of their packings, including which have recently been put upon the market. It is printed in two colors, and has a handsomely embossed cover printed in four colors. There is much valuable information contained in this catalogue, which has been prepared at great expense, and no time or labor has been spared to make it complete and instructive. A free copy will be mailed on request to the company. The Revere Rubber Company is represented in England by the Universal Agency Company, 118 Holborn, London, E. C.

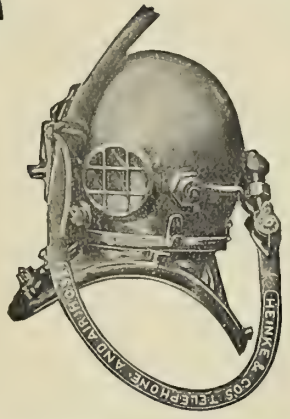
"Consolidated" packings and supplies are the subject of a handsome catalogue printed in several colors just issued by the Consolidated Packing & Supply Company, 136 Liberty street, New York City. "In the following pages you will find described many of our almost unlimited grades of packing—all of our styles carrying a full guarantee to be unequaled for their respective services. Our seventeen yars of constant and devoted attention to packing and packing conditions and requirements have given us the necessary confidence in these goods to make the above guarantee, feeling that same is done without the least semblance of risk on our part. In order to obtain such confidence, we are obliged, in the first place, to put in all our goods the very best raw materials available, and have them manufactured under the supervision of men noted for their mechanical ability and wide knowledge in the making of packings. Consolidated rubber compounds have for their base only the finest grades of pure Para gum, and all asbestos products of our manufacture are made from the longest Canadian asbestos fibre, being entirely free from the prevailing short fibre used by so many competitive concerns."

Scherzer rolling lift bridges are described in a beautifully printed and illustrated cloth-bound volume just published by the Scherzer Rolling Lift Bridge Company, Monadnock Block, Chicago, Ill. The volume traces the history of bridges of various types from mediæval times to the present day, and is profusely illustrated by half-tone cuts of the company's rolling lift bridges in all parts of the world.

The Fourteenth Annual Report of Webb's Academy and Home for Shipbuilders is just off the press. This institute is located at Fordham Heights, New York City, and it is its purpose to "afford relief and support to aged, indigent or unfortunate men who have been engaged in building hulls of vessels, or marine engines for such, in any section of the United States, together with the wives or widows of such persons, and also to furnish any young man, a citizen of the United States, able to pass the necessary examinations, a gratuitous education in ship and engine building."

Electric motor drives applied to machine tools are described in illustrated Bulletin No. 1,111, published by the Fort Wayne Electric Works, Fort Wayne, Ind. The field of usefulness of electric motors for driving machinery is very large, and the great strides of advancement in design and in the perfection of the details which determine the successful operation of motors, has resulted in a simple, efficient, durable machine that anyone can operate with economy and safety. Many advantages are claimed by the manufacturer for the Fort Wayne motors, such as unusual economy, convenience, flexibility, independent control and the choice of belt, chain, gear, or direct drive.

"Reactions" is the title of a quarterly bulletin published by the Goldschmidt Thermit Company, 90 West street, New York City. This volume is issued in the interests of the thermit process. For locomotive repairs, such as repairs to engine frames, connecting rods and driving wheel spokes, thermit is said to be especially valuable, as it offers the important advantage that welds may be made without dismantling the engine, and the locomotive remains in the shop only a day or two instead of a week or two. The claim is made, moreover, that the reinforcement of thermit steel which is fused around the welded section gives added strength at this point and prevents breakage under the same strains that caused the first break.



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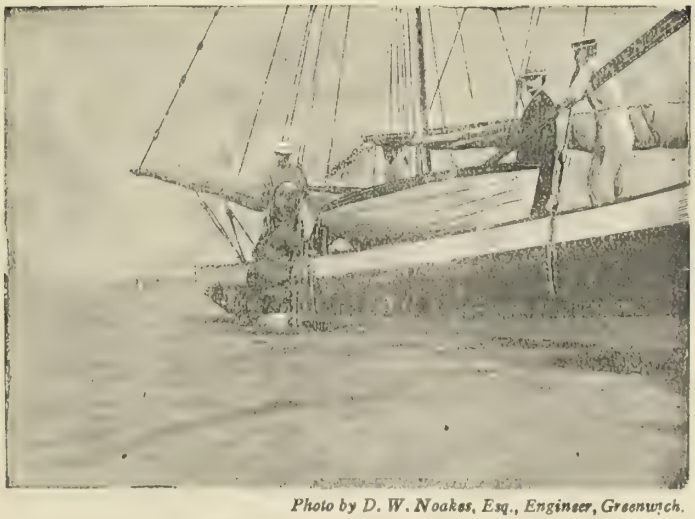

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Cast, malleable and brass fittings, brass and iron valves and cocks, wrought steel and iron pipe, valves and Stillson wrenches, are described in illustrated circulars distributed by the Walworth Manufacturing Company, 128 Federal street, Boston, Mass.

The latest number of "The Valve World," published by Crane Company, Chicago, Ill., gives an illustrated description of the company's new plant at Bridgeport, Conn. The new buildings have a total floor space of about 366,000 square feet, and there are 2,500 employees.

Graphite brushes are the subject of an illustrated 12-page booklet published by the Joseph Dixon Crucible Company, Jersey City, N. J. This booklet contains considerable information of importance to all users of graphite brushes, and this same information is also of interest to many others connected with mechanical and electrical pursuits. A free copy will be sent to any of our readers upon application.

Metropolitan injectors, which are stated by the maker, the Hayden & Derby Manufacturing Company, 85 Liberty street, New York City, to be the most reliable, durable and economical injectors on the market, are described in a catalogue which the company has just published. These injectors are made in two types: one automatic with an open overflow, the other a double-tube injector with a closed overflow.

Smoooth-On Instruction Book No. 7, published by the Smooth-On Manufacturing Company, 572 Communipaw avenue, Jersey City N. J., is just off the press. This gives full information regarding the different Smooth-On specialties. The book will be sent free of charge to anyone of our readers forwarding his full name and present address.

A Manual for Engineers.—The American Blower Company, Detroit, Mich., write us that they have a limited supply of these books, which have been compiled by Prof. Charles E. Ferris, of the University of Tennessee. They are leather-covered, vest-pocket size. The company will send a free copy as long as the supply lasts to any reader mentioning this magazine.

Coal handling machinery for coaling stations, shipyards, boiler rooms, etc., is the subject of a very complete 64-page catalogue, No. 072, issued by C. W. Hunt Company, West New Brighton, N. Y. Any one interested in this class of machinery should send for a copy of this catalogue, which will be sent free to readers mentioning this magazine.

"Aids to Navigation" is the title of a 30-page illustrated catalogue issued by the Nicholson Ship Log Company, 409 Superior street, Cleveland, Ohio. "The Nicholson recording ship log is a radical departure from all other types of nautical measuring devices. In addition to giving the mileage sailed, it shows the speed per hour on a dial and records this speed on a chart for every minute of the trip. These records can be dated and filed away for further reference, and should any accident or controversy occur, they would furnish incontestable evidence. The successful application of the speed of the moment dial and the record is entirely original with the Nicholson log."

A new line of horizontal and vertical milling machines has been placed on the market by the Cincinnati Milling Machine Company, Cincinnati, Ohio, and is described in a handsomely illustrated catalogue which the company has just published. This illustrates an entirely new line of horizontal and vertical milling machines. These machines are built on the unit system, each group of mechanisms being assembled as a complete unit, and all these units are interchangeable between the horizontal and vertical machines. This makes it possible to supply these machines not only with constant speed drive, but also with right-angle drive, constant-speed motor drive and variable-speed motor drive, and a change from one style of drive to the other is very easily made and it can be done very readily by the user in his own shop, whenever any change in the method of power transmission makes it advisable. These machines embody a lot of entirely new features, such as a locked tumbler, the elimination of torsional strains in the main driving shaft, the treadle arrangement to facilitate quick and easy speed changing, a single plunger trip, operating a trip clutch mounted on a shaft running ten times as fast as the feed screw. The vertical machines are entirely distinctive in design, having the same features as the horizontal machines throughout, except that the spindle is in a vertical position. This spindle is unusually long, has its bearings both mounted in a single-piece head casting, and this head casting or frame has very long and wide bearings in the main frame of the machine as compared with past practice. Each size of vertical miller is intended to do as heavy milling as the equivalent size of horizontal machine.

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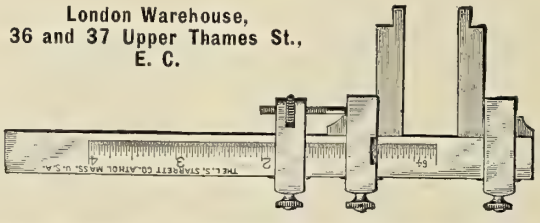

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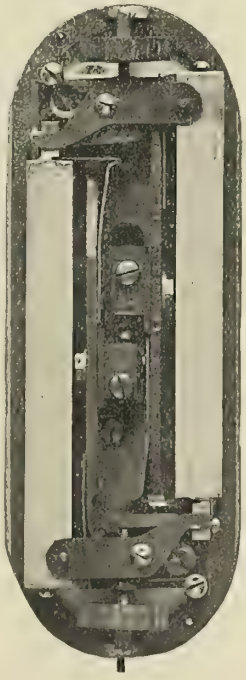

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A series of engineering treatises or bulletins is promised by the Wheeler Condenser & Engineering Company, Carteret, N. J., which is distributing a 16-page bulletin No. 101, which outlines this company's facilities and products, including Wheeler Admiralty surface condensers, Wheeler jet and barometric condensers, Wheeler-Edwards patent air pump, Wheeler-Volz combined condenser and feed-water heaters, Wheeler feed-water heaters, Wheeler improved reheaters and receivers, Wheeler vertical engines, Wheeler centrifugal pumps, Wheeler rotative dry vacuum pumps, Wheeler-Barnard water-cooling towers, Wheeler vacuum pans and multiple effects for sugar and chemical works, etc. Succeeding numbers will contain in addition useful and practical information, tables, etc., on condensing work and allied branches of engineering, thus becoming not only a continued catalogue but also a record of progress in condensing, vacuum, distilling, feed-water heating and pumping apparatus. The Wheeler Company kindly offers to place the name of anyone interested in these subjects on its mailing list, and tenders the aid of its engineering staff in the designing and layout of plants where such equipment may be required.

TRADE PUBLICATIONS

GREAT BRITAIN

The Berthon Boat Company, Ltd., Romsey ,Hants, is distributing circulars illustrating and describing its yachts, steam launches, fishing punts and canoes.

"Hints on the Covering of Steam Pipes, Boilers, Etc., with Insulating Materials" is the title of an illustrated booklet issued by William Kenyon & Sons, Dukinfield, near Manchester.

The calendar issued by Armstrong College, Newcastle-on-Tyne, for the season of 1908-9 is a volume of over 400 pages, and explains fully the scope of the institution and the courses of studies. Among the principal courses are naval architecture, and the departments of marine, mechanical, civil and electrical engineering. Full particulars may be obtained upon application to F. H. Pruen, secretary of the college.

Thomas Noakes & Sons. Ltd., contractors to crown agents for the colonies and India, office 4 and 5 Osborn Place, Brick Lane, London, have published a number of circulars describing and illustrating their high-class engine and boiler fittings, reducing valves, safety and relief valves, asbestos-packed cocks, water gages, feed pumps, gunmetal, copper and phosphor bronze castings.

Crompton & Company, Ltd., the Arc Works, Chelmsford, have issued a catalogue describing and illustrating their engineering works and their output, among which are dynamos and motors from 2 B. H. P. to one-third 1,000 kilowatts, motor generators and boosters, electrically-driven pumps, arc lamps, searchlights and electric supplies and machinery of all kinds.

Radial drilling, boring, tapping and studding machines are the subject of a catalogue issued by Wm. Asquith, Ltd., Halifax. This firm's heavy-type machines are particularly suitable for heavy marine and ordnance works, also for large, general engineering work. The motor drive is through variable speed shunt-regulated motor, with constant power through a large range of speeds, and doubled by the double gear on the spindle slide, giving a large number of cutting speeds, easily and quickly controlled.

Ship heating and ventilating is the subject of a booklet entitled "Thermotanks," which is published by the Thermotank Ventilating Company, 55 West Regent street, Glasgow, the designer and builder of a heating and ventilating system with improved arrangements for heating, cooling and humidifying. The thermotank may be placed either on the weather deck or between any of the other decks, and is connected to a system of trunking arranged throughout the compartments or rooms through which any required volume of air may be supplied at any desired temperature. A long list of ships belonging to the merchant marine is given, in addition to various navies which have been fitted with the thermotank system. Among the well-known ships on this list are the *Mauretania, Lusitania, Caronia, Carmania, Rotterdam, Adriatic, Chicago* and many others.

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BUSINESS NOTES
AMERICA

Marine Engine Indicating Experience.—Mr. Charles S. Linch, naval architect and engineer, 1507 Tioga street, Philadelphia, Pa., after an exhaustive test of the American-Thompson indicator, made by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass., has made the following report to the manufacturer: "I have been asked by you to state the advantages of the detent motion manufactured by your company and forming part of the best instrument in the world to-day—the American-Thompson improved indicator. 1st. A point that commends itself is the rapidity with which cards can be taken and the ease with which one can stop the drum to look at card in any position of the piston's stroke. 2d. The advantage of being able to put on or take off cards without having to unhook leading card. 3d. The advantages of having eliminated the take-up on leading cord cannot be over-estimated. This take-up is either a light coil spring or rubber band, one end of same being connected to instrument, the other end connected to leading cord. It frequently happens when trying to hook the drum cord with the leading cord that one or the other is broken. If this occurs after the ship has passed the observer at beginning of a run over the measured mile, the cards corresponding to this run are absent. If it is necessary that cards corresponding to each run be submitted, then the run has to be started again. The detent motion entirely eliminates this danger, which is not a supposition, but very frequently occurs. 4th. There being no ratchet and pall, the throwing of drum in or out of gear does not introduce the whipping of the cord, which, when drum is stationary, frequently causes entanglement and consequent breaking of cord. 5th. The ease with which the drum is cut out or put into gear, involving as it does the slight pressure of the forefinger upon the lever to put out of gear, and the slight pressure of thumb and forefinger to put same into gear; a very slight pressure on knurled nut being sufficient. 6th. In case card should tear, the instrument can instantly be thrown out and a new card substituted in far less time than one could unhook and again get instrument into commission. 7th. In very many cases the indicator piping is very close to throttle valve, and when the high-pressure reducing motion is forward, this brings the lead cord close to the by-pass pipe. In unhooking or hooking the string, one is liable to receive burns by the hand coming into contact with this uncovered pipe. With the detent motion this danger is eliminated, as the writer two years ago had several severe burns by being compelled to hook and unhook cord, but in this test no burns were received, as the detent motion was used and cord was not touched after the instruments were adjusted during the whole run of five days. 9th. One operator can handle three instruments equipped with detent motion while one man is taking one card hooking and unhooking cord. That is to say, with the three instruments used on this test, one on high-pressure cylinder, one on intermediate-pressure cylinder, and one on low-pressure cylinder, the writer started at high-pressure cylinder, took a set, then to intermediate pressure, thence to low pressure, taking each set and throwing drum out of commission, removing at the same time the cards while an assistant followed, putting new cards on drums and throwing same into gear. The time taken to do this was far less than that required to take the high-pressure set, hooking and unhooking cord. 10th. The advantage of this motion cannot be shown to a greater degree than when one is taking a number of cards under certain conditions during a run over measured course. The writer selected the high-pressure cylinder, where the conditions were most unfavorable, being next to main steam pipe and cramped, so to speak, for room. A test was started, timed with a stop-watch, and the operator had to take his card from pack, turn the edges, put same on drum, throw into gear, take the card, throw drum out of gear, and remove card. The three-way cock was handled with left hand. The straight-way cock opened for atmosphere, and with this motion the average was five cards in 61.5 seconds. The drum was thrown out with

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forefinger, the pencil notion handled with third finger, and the cards were absolutely identical in every respect and perfect in every particular. This will convince the most skeptical of the advantages of this motion. I believe that there is not upon any steamer along the coast a more cramped or uncomfortable place than at the three-way cock on this high-pressure cylinder; hence my desire to find out how many could be taken under these conditions by one man handling everything. I have cited only a few of the advantages, and where an instrument is used on circulator engines, blower engines and other auxiliary machinery, the great advantage of this motion is at once manifest. The circulator engine of this ship is close to a bulkhead, and if the cards had to be taken from this engine the detent motion would be a necessity. 11th. With this detent motion, after the drum is adjusted for card length and clearance of stops, no more attention need be given the cord. This is a valuable consideration, as one can then give one's attention to the instrument and cards. The disadvantage of other methods are, when one has to hook and unhook the cord in trying to get the hook in eye, no amount of care will prevent drum fetching up against stop, and very often pulling hook out straight or breaking cord, and the operation is very tiresome even with no setbacks. With this detent motion, taking cards becomes a pleasure, and one can take a card, look at it without removing same from drum, and instantly throw the drum into commission and proceed. When a number of cards or impressions are to be taken on the same card, such for instance as linking in, with this motion we can instantly stop the drums, look at cards, and either link in or out, take another card, etc. If we wished to do this and were compelled to unhook and hook all the time, the stretch of cord would soon manifest itself. The writer was convinced of this on two or three trial trips, where the operators were experienced men. On this test no stretch was noticed, and it was a pleasure to stop drum, examine card, and have man at the reverse shaft arms throw the links in or out, and the time saved was enormous."

Free—A large can of grease, an engineer's cap and a fine brass grease cup. These articles will be sent absolutely without charge to any engineer who will write to Department V, the Keystone Lubricating Company, Philadelphia, Pa., mentioning that he saw the offer in International Marine Engineering.

The National Motor Boat and Engine Show will be held in the Mechanics' building, Boston, Mass., Jan. 23 to 30, inclusive. For diagrams, application blanks, prices, etc., apply to Chester I. Campbell, 5 Park Square, Boston. This show will be held under the auspices of the New England Engine & Boat Association, and is sanctioned by the National Association of Engine and Boat Manufacturers.

The Richardson automatic sight-feed oil pump is described in a circular issued by Vandyck Churchill Company, 91 Liberty street, New York City. After seven years of experience in the design, manufacture and operation of oil pumps of many sizes, the company is making a specialty of its model M, which it states combines the good features of former models with many new improvements. The size has been reduced 30 percent, and all projecting screws, nuts or plugs have been removed. Further improvements have been made in the working mechanism.

Orders for Forced Draft Equipment and Ventilating Apparatus.—The American Blower Company, Detroit, Mich., write us that they have recently received orders for a large volume of business. They have given us the names of many railroads and manufacturing concerns which have ordered their equipment, among them being the Collingwood Shipbuilding Company, Collingwood, Ontario, Canada; the shops of the Hocking Valley Railroad Company, Columbus, Ohio, forced draft equipment; Northern Pacific Railway, Paradise, Mont., and the New York Central Railroad, Avis, Pa., roundhouse heating, ship ventilation and induced draft. These are but a few of the many installations recently made by the American Blower Company.

"Flexible Compound," made by the Flexible Compound Company, 3607 Haverford avenue, Philadelphia, Pa., is stated by the manufacturer to be an oil product, and not a paint or a varnish. The claim is made that it is a perfectly flexible water-proof binder; that it provides positive protection from moisture, acids, the fumes from locomotives, etc., and that it is not affected by 800 degrees of heat. It is said to be especially valuable for the front ends of locomotives, for locomotive tender finishing, round-house painting and boiler tubes, while in the shipbuilding field it is an excellent anti-fouling paint, as well as a rust-proof compound for all interior or exterior work. When applied to leather or canvas belting the maker states it will render them water-proof and cause them to cling to the pulley.

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Nicholson Ship Logs.—Barrett & Lawrence, 662 Bullitt building, Philadelphia, Pa., Eastern agents of the Nicholson Ship Log Company, Cleveland, Ohio, have received the following letter from George Uhler, supervising inspector-general: "I have to inform you that your Nicholson speed indicator and ship's log, presented to the Board of Supervising Inspectors at the meeting of January, 1908, was adopted by the Board on Feb. 19, 1908, and received the approval of the Secretary of Commerce and Labor on Sept. 5, 1908, in compliance with the provisions of Section 4491, Revised Statutes."

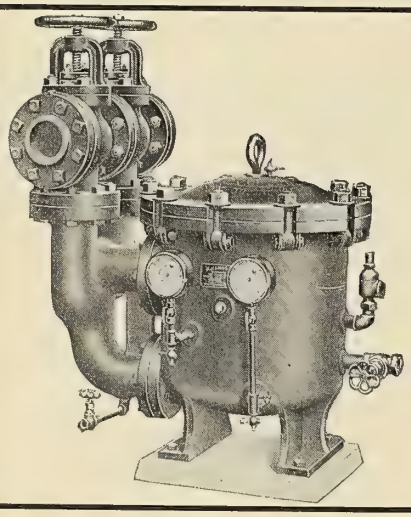
Taking Indicator Cards.—There has been a demand for a long time for an instrument that will enable the operator to produce indicator cards in rapid succession. At the present time a well-known concern states that four cards a minute can easily be produced with their indicator. They further state that on test runs, where all kinds of conditions are in evidence, the objectionable features are practically eliminated. Every engineer who has taken indicator readings is aware of the trouble experienced in hooking and unhooking drum cord, it being especially troublesome in close quarters. Engineers are aware, with the ordinary instrument, they hook and unhook leading cord, which stretches, and, of course, will not produce perfect diagrams. A short time ago an expert marine engineer took diagrams and was able to produce five cards in 61.5 seconds. The diagram showed clearly in every respect, and he was able to take cards at different positions of the piston stroke. It is stated that the company manufacturing this indicator has a very important feature found in no other, and if any reader is interested he should write to A-T-I, 219 Congress street, Boston, requesting copy of letter referring to the five cards in 61.5 seconds. It explains in detail an actual test, describing clearly why every engineer should own an indicator.

BUSINESS NOTES

GREAT BRITAIN

The official trial of the destroyer *Para*, built for the Brazilian government by Yarrow & Company, Ltd., Glasgow—late of Poplar, London—took place recently in the Firth of the Clyde, when a speed of 27¼ knots was obtained during a continuous run of three hours, carrying a load of 100 tons.

Trial Trip of S. S. *Spreewald*.—This fine passenger and cargo vessel, the second of three sister ships to the order of Messrs. The Hamburg-Amerika Line, and just completed by Messrs. Furness, Withy & Company, Ltd., at their Middleton shipyard, Hartlepool, proceeded on her trial trip recently. The vessel is a very fine sample of naval architecture, and the Hamburg-Amerika Company is to be complimented on its usual foresight in determining upon the most up-to-date classes of vesels for the special trades in which they are engaged. The ship is beautifully fitted up and is especially adapted for carrying first-class passengers and the better class of emigrants to and from the West Indies. Every effort has been made for the comfort of the passengers, great care having been taken with the ventilation, electric fans being fitted in each passenger berth, saloon, ladies' room and smoke room. The ship is about 400 feet in length, and has two complete decks, with long bridge, poop and forecastle. In the bridge, amidships, is fitted the accommodation for the first-class passengers, engineers, purser, stewards, stewardesses, etc., also the galley, bakery, baths, lavatories, etc. The main dining saloon, ladies' saloon and smoke room are situated in lofty houses on the bridge deck, and on top of the saloon house is a large teak house, containing accommodation for the captain and officers. Above this is the chart and wheel-house, the top of this house being over 62 feet above the keel of the vessel. The 'tween decks, all fore and aft, are fitted up with galvanized iron berths for emigrants, all the necessary washhouses, hospitals, shower baths, etc., being included. The vessel has two masts and two derrick posts, and for dealing rapidly with general cargoes there are eleven powerful steam winches and seventeen patent tubular steel derricks, including two each of 15 tons capacity. Light, large boats are fitted on the boat deck, which extends the full length of the bridge amidships, these boats being carried on patent tubular davits. For carrying the necessary provisions, wines, etc., for passengers, rooms have been fitted up in the after end of the ship. The electric installation consists of two direct-coupled engines and dynamos, and over 300 electric lamps are distributed throughout the ship. A very powerful steam steering gear (Sivewright's patent) is fitted in a large house, the poop, with telemotor gear, to the captain's bridge amidships. The whole of the auxiliary machinery for this vessel has been manufactured at the Middleton Shipyard, Hartlepool. The



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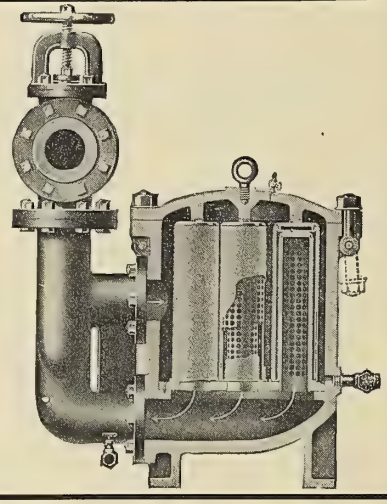

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engines, which are of the triple expansion type, have been constructed by Messrs. Richardsons, Westgarth & Compnay, Ltd., Hartlepool, and have cylinders 25½ inches, 43 inches, 72 inches diameter, with a stroke of 48 inches. The high-pressure cylinder is fitted with a piston valve and the intermediate and low-pressure cylinders with balanced slide valves. All the shafting is of ingot steel, and the propeller shaft is covered with a continuous gunmetal liner. The propeller is of manganese bronze. For controlling the speed of the engines a governor is fitted and connected with the throttle valve. There is a Weir's contact feed heater, and the engine room auxiliaries are very complete, including general purpose, fresh water and ballast pumps, feed-water filter, evaporator, etc. A novel feature in connection with the whistle is an electric gear, adopted by the Hamburg-Amerika Company, by means of which the whistle can be automatically sounded at intervals. Steam is supplied to the main engines and auxiliaries by three single-ended boilers, 14 feet diameter by 12 feet long, working at a pressure of 200 pounds per square inch, and arranged with Howden's system of forced draft. An ash ejector is fitted in the stokehold and an additional two-cylinder ash hoist. The machinery throughout is of very substantial and massive design. During a six hours' continuous full-speed run the main engines, refrigerating plant and the whole of the auxiliary machinery worked most satisfactorily, the vessel attaining an average speed of 14 knots.

The plastic white metal made by the Phosphor-Bronze Company, Ltd., 87 Sumner street, Southwark, London, S. E., is used for lining up bearings, bushings, shafts and spindles of all kinds of machinery, and is made to a government specification. It is stated that it will adhere firmly to iron, steel, brass and bronze; that it is applied in a plastic condition with great ease, and is particularly useful in bringing up worn bearings or shafts to their original sizes.

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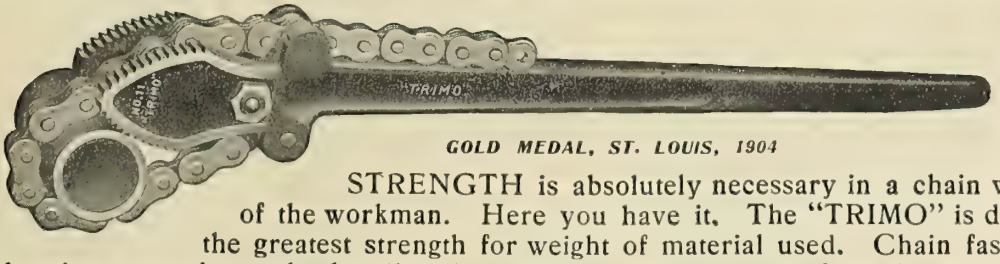

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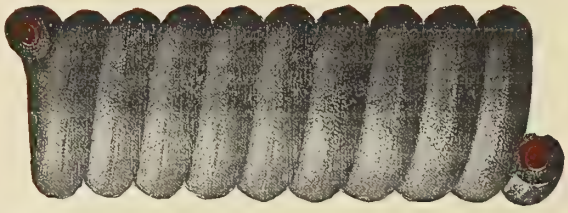

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TRADE PUBLICATIONS.

AMERICA

Autogenous welding by the oxyacetylene process is described in a pamphlet published by the Davis-Bournonville Company, West Street building, New York City. A full description of the process is given in this pamphlet, and also of the oxygen and acetylene regulators and pressure indicators and the other apparatus manufactured by the company, which is engaged in the development of this new process, and in devising auxiliaries which will add to its convenience and effectiveness.

Engineering marine specialties and supplies are described and illustrated in a catalogue published by the Griscom-Spencer Company, 90 West street, New York City. "We call your attention to our extended facilities for the manufacture of all classes of engineering specialties, building of small vessels, all kinds of copper work and engineers' suplies, electrical equipments, and for the supply of tools and machinery. In addition, we would point out the convenience of our water front at Jersey City, close to the Pennsylvania Railroad and alongside of four New York ferry slips, for repairs to steamships, yachts, tugs and general marine work. Wharf and railroad tracks on the premises. We are at all times in a position to undertake engine and boiler repairing, the renovating of cabins and all manner of ship carpentry, refitting of hulls, rigging and decks, and appliances for handling cargo, etc., at short notice. Our shop room is ample for any emergency, and our skilled force and modern facilities are sufficient to turn out work with the quickest possible despatch. We have had long experience and are thoroughly conversant with all classes of shore and marine repairing, and keep in stock all supplies necessary for any description of repair work we might be called upon to do at short notice. The West street shops were established in 1867, and for nearly twenty-five years did practically all the repair work of the International Navigation Company (American and Red Star Lines) and many other foreign, coastwise and river steamship and steamboat lines. Operating as we do all of the branches requisite for a complete repair works, and the manufacture of engineering specialties, and uniting therewith the best stocked supply house in New York, we possess advantages above the average establishment of its kind, and can offer facilities to our patrons rarely found in one establishment."

An official guide of the University of Pennsylvania has been published in pamphlet form by the Standard Roller Bearing Company, Philadelphia, Pa., and will be sent to those interested upon application to the company.

"Surface Condensers" is the title of a 21-page booklet published by the Wheeler Condenser & Engineering Company, Carteret, N. J. The contents include a chapter on the economy of running condensing, another on the advantages of the several types of condensers, followed by a description of the Wheeler surface condensers, with some remarks on the relative advantages of rectangula rand cylindrical shells. The Volz combined feed-water heater and condenser, in which some of the tubes serve as a primary heater, is next described, after which there is a section on turbine condenser outfits. The end of the booklet is devoted to notes and suggestions on the installation and operation of surface condensers. The illustrations show not only the various types of Wheeler, Admiralty and Wheeler-Volz surface condensers of the rectangular and cylindrical patterns and water-works condensers, but include a considerable number of the largest steam-power plants in this country.

Multiple drills are the subject of a catalogue published by Pratt & Whitney Company, 111 Broadway, New York. This company's multiple spindle drills Nos. 11, 12 and 13 are designed for drilling simultaneously a number of holes in valve flanges, automobile hubs and a great variety of work of similar character. The spindles are adjustable, to allow for drilling holes in groups of square, circular or other forms, using one or more spindles. The whole series of machines has been remodeled, making them more rigid to handle than heretofore, and some features have been added by which they are made more suitable for general use. The machines are furnished either with or without power feed. The No. 14 multiple-spindle drill is made only to order. It is of an entirely new design, and is suitable for driving high-speed steel drills of ½ inch to 1 inch diameter to the limit of their efficiency. No. 7 type G multiple-spindle drill is also made to order, and is designed for drilling valve and cylinder flanges up to 36 inches in diameter. No. 10 type H multiple-spindle drill, made to order only, has been designed for heavy work, and is capable of drilling eight or ten holes simultaneously in the steel frames of electric motors for railway purposes.

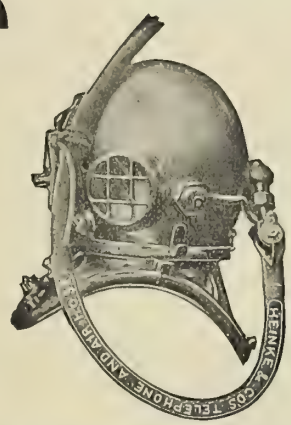

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Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Riveters are described in illustrated catalogue No. 3 published by the Hanna Engineering Works, 835 Elston avenue, Chicago, Ill. In the Hanna type of riveter is combined in simple form toggles, levers and guide links to give the large opening of the toggle joint movement with its gradually increasing pressure until the desired pressure is reached, then a simple lever movement throughout a considerable space under approximately maximum pressure. This space is sufficient, so that there need be no uncertainty about the pressure applied to the rivet, and the machine once adjusted for a certain length of rivet and thickness of plate will require no further adjustment for ordinary variations in length of rivets, size of holes or thickness of plates, thus reducing, according to the manufacturer, hydraulic results with a pneumatic riveter.

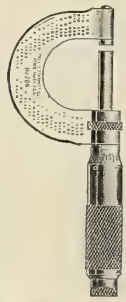
A Valuable Book on Rivets.—"Scientific Facts and Other Valuable Information About Victor Boiler, Structural and Ship Rivets" is the title of a handsomely printed and illustrated catalogue of 78 pages, published by the Champion Rivet Company, Cleveland, Ohio. This catalogue contains a great deal of information of interest to users of rivets, and a free copy will be sent to every reader who will mention this magazine. Included in the catalogue are the essays on "How to Heat and Drive Good Steel Rivets," which were awarded the prizes tendered by the Champion Rivet Company at the annual meeting of the International Boiler Makers' Association, held in Cleveland last May. There is also a report on physical and mechanical tests made of Victor steel rivets. These tests are all practical, and the originals may be seen in the office of the company, or if anyone desires to repeat the tests for his own satisfaction, sample rivets will be sent upon application. In the back of the catalogue is a series of illustrations showing some of the important work in which Champion rivets have been used, such as the United States cruisers *Washington* and *Des Moines,* the Great Northern steamship *Minnesota,* the Russian cruiser *Variag,* the great locomotive No. 989 made by the American Locomotive Company, the United States Custom House in New York City, various watertube and Scotch boilers, dry-docks, bridges, office buildings, etc.

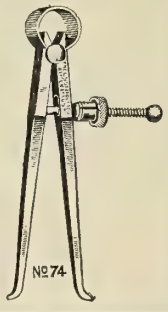
"Illustrated Opinions" is the title of a pamphlet of 160 pages published by the Roberts Safety Water Tube Boiler Company, Red Bank, N. J. This pamphlet consists of a large number of testimonials from well-known shipbuilders, yacht owners, engineers and other users of the Roberts watertube boilers. The book is profusely illustrated with half-tone engravings of well-known yachts, steamships, tugs, dredges and other vessels in which these boilers are installed. "The Roberts safety watertube boiler was invented, for use in his own yacht, by Mr. E. E. Roberts, of New York. He had been for many years an engineer in the regular service of the United States navy, and had had a large experience also with the machinery of merchant vessels. At the time of the invention of the boiler, he was doing business as a consulting engineer in New York, and was very successful in that line. He had lately purchased a summer cottage on the banks of the Shrewsbury River in New Jersey, and the salt in his blood made it necessary that he should have some sort of craft with which to enjoy the beautiful Shrewsbury River and its connections. Doing business in New York and living in New Jersey left such a short time each day for the enjoyment of the water that it was absolutely necessary for him to have a boiler which would get up steam with great rapidity upon arrival at home. He had tried all the boilers generally used without satisfaction, when the idea of a steady water line, quick-steaming watertube boiler suggested itself to him, and he built one which proved entirely satisfactory. This boiler is still in use in the launch *Mamie C.* This boiler was, however, a very crude affair compared with the boiler subsequently patented by Mr. Roberts, and known throughout the world as the 'Roberts Boiler.' The boiler was not originally invented for commercial purposes. The inventor had a very satisfactory business at the time and did not care to make any change in that respect. After using the *Mamie C.* for about two years he sold her to Mr. A. E. Clark, and we believe she is still owned by that gentleman. She acted as the first advertisement for the boiler, and the result was that inquiries and orders began to pour in upon Mr. Roberts to such an extent that he was obliged to give up his business as consulting engineer and eventually organize the Roberts Safety Water Tube Boiler Company. Over 1,600 boilers have been sold previous to the time that this pamphlet goes to press in the spring of 1908. They range in power from 10 horsepower to 700 horsepower each. They are used for all types of vessels, and—to a greater or less extent—by all the departments of the United States Government, as well as by a number of foreign governments. The boilers are of light weight, occupy little space, are practically non-explosive, and are easily repaired without recourse to the boiler shop."

AND INSTRUMENTS OF PRECISION

Send for our 232-page Catalogue, No. 18-L

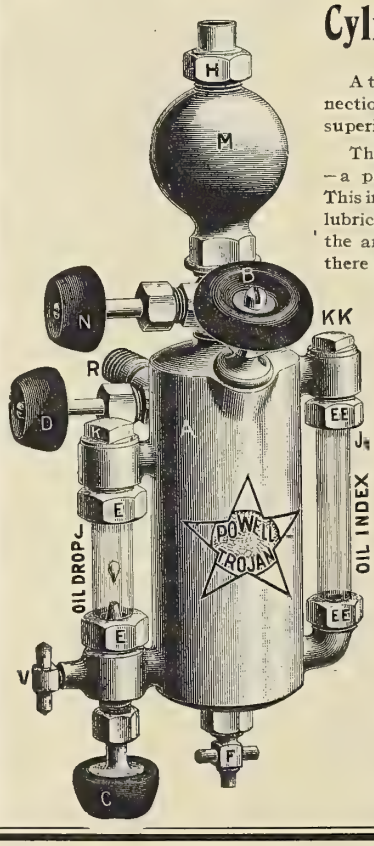
Many new tools are shown by the more than 300 illustrations, and a number of improvements in design will be noticed, besides several more pages of useful tables than are given in earlier editions. Every tool is indexed both by name and number, and no pains have been spared to make this the most complete and most attractive tool catalogue ever issued. A glance at the table of contents will indicate its wide scope. Among the many instruments of which we make a specialty are calipers and dividers of all sorts, center punches, gages of every description, micrometers, rules and squares of all kinds, steel tapes, and, in fact, almost every kind of instrument of precision.





The L. S. STARRETT CO.
ATHOL, MASS., U. S. A.
London Warehouse,
36 and 37 Upper Thames St.,
E. C.

The Powell "Trojan" Sight-up Feed Cylinder Lubricator



A thoroughly efficient double connection lubricator of neat design, superior workmanship and finish.

The body-shell is cast in one piece—a patented Powell construction. This insures positive feed and perfect lubrication under all conditions, as the arms can't get out of line and there are no joints to loosen or leak.

Oil chamber is filled directly through filling cup B on all sizes. You don't have to wait for oil to seep through small openings. See it at your jobber's—if HE does not carry it in stock, ask us who does.

Our 280 page catalog is yours for the asking. Write for it now while you think of it—a postal will do.

The Wm. Powell Co.
CINCINNATI, OHIO
NEW YORK, 254 Canal St.
BOSTON, 239-45 Causeway St
PHILADELPHIA, 518 Arch St.

D X N D X N D X N D X N

All Change Does Not Mean Progress, But all Progress Means Change

IF you are only familiar with oil and grease lubrication, well—look out for ruts. What is the benefit derived from adding Dixon's Flake Graphite to oil or grease? Hundreds of successful engineers testify that it lessens friction, prevents cutting, saves lubricant. Can you answer this question from "first hand" experience?

Write for free booklet 58-C and a sample.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

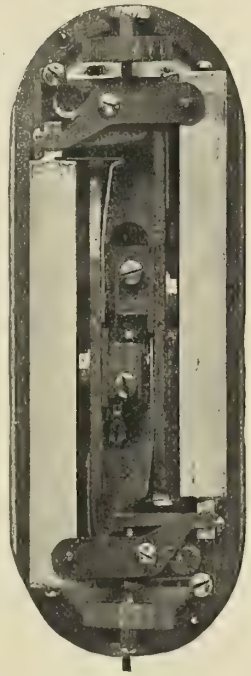
European Agents: KNOWLES & WOLLASTON
Ticonderoga Works, 218-220 Queens Road, Battersea, London, S. W.

D X N D X N D X N D X N

A handsome lithograph, 10 by 6, of the Holland-America Line steamship *Rotterdam* has been printed on heavy paper by the Welin Quadrant Davit Company, 17 Battery Place, New York City. This is one of the ships recently fitted with Welin quadrant davits. The picture shows the *Rotterdam* passing the Battery, and makes a very handsome appearance when framed.

Electric Heat Regulation in Steam Ships

The only Vibration-Proof Electric Thermostat in existence. Will absolutely maintain accurate Day and Night Temperatures in electrically heated rooms. It saves from 40 to 50% of current



when compared with heaters not regulated. This is proven by records taken on board of modern trans-Atlantic liners. We will submit these records to anyone interested.

Mechanism of Thermostat

GEISSINGER REGULATOR CO.
203 GREENWICH ST., NEW YORK CITY

British Agent: JOHN CARMICHAEL
Crookston, Eaglescliffe, Durham

"Our Friends in New York" is the title of a little book published by the Mianus Motor Works, Mianus, Conn. The company states that they could tell a great deal about the good qualities of Mianus motors, but that coming from them people would make an allowance on everything said and not believe much of it. So they have printed in this book a list of of the names and addresses of people in New York City to whom they have sold motors since Jan. 1, 1908. "Some of them may be friends of yours; they are all friends of ours, and we should be glad to refer you to any of them if you are thinkink of purchasing."

Lunkenheimer steam specialties are the subject of a great number of catalogues and booklets issued by the Lunkenheimer Company, Cincinnati, Ohio, any one of which will be sent free upon application to readers mentioning this magazine. Among the catalogues this company issues are those with the following titles: "Generator Valves," "Safety Valves," "Oil Cups," "Exhaust Pressure Regulators," "Safety Water Columns," "Automatic Injectors," "Automatic Cylinder Cocks," " Mechanical Oil Pumps," "Blow-Off Valves," "Specialties for Traction or Portable Engines and Boilers," "Regrinding Valves," "Sand Blast and Air Nozzles," "Grease Cups for Cylinder Lubricators," "Oiling Devices," "Whistles," "Ground Key Work with Special Keys," "H-W Cross-Head Pin Oiler," "Specialties for Automobiles and Motor Boats."

Friction clutches are described and illustrated in catalogue D published by the Carlyle Johnson Machine Company, Hartford, Conn. This clutch has few parts and is very compact. A body fastened to the shaft carries a split ring, in which are inserted a pair of levers, a curve-shaped wedge, which is made part of a shipper sleeve, forces the levers apart, expanding the ring and bringing its outer surface into frictional contact with the inner surface of the friction cup, the hub of which is made to suit requirements. The leverage is so compounded that it requires little pressure to operate the clutch. These clutches have been adapted as parts of machines by many of the leading manufacturers, and are said to be especially adaptable for such use on account of their small size. Sixteen thousand of these clutches have been used by one manufacturer of turret lathes as a part of the lathe head.

The flue welding machine made by Joseph T. Ryerson & Son, Chicago, Ill., is driven entirely from a pulley, no air or steam being necessary to exert the pressure on the welding point. It is said to be the only machine on the market which rolls the lap of the weld on the inside as well as the outside. The simple and accurate adjustment of the rollers is one of its greatest advantages, and is accomplished by placing a cold tube on the mandrel and bringing down the arms of the machine so that they bear upon the surface of the tube. This requires no skill, and may be accomplished in five minutes. Once the machine is set, every tube welded will be exactly the same size. The machine is free from gears of any kind, and all fast-running parts are arranged so that the slightest wear can be taken up. The manufacturer states that it is the only flue-welding machine on the market which is noiseless in operation. The operator has both hands free to handle the work. This machine is said to be in use in the principal railroad and contract boiler shops of the country, and everywhere to be giving satisfaction.

Melting furnaces are described in illustrated catalogue published by the Rockwell Furnace Company, 26 Cortlandt street, New York. In presenting this catalogue the company has endeavored to cover the entire melting field, and give those who contemplate melting metal or any material, for any purpose, an opportunity to select that which is best adapted to their requirements. "The air pressure and volume will vary according to the kind of metal melted. For pressure under 16 ounces a steel fan blower of sufficient size for the volume required will maintain uniform pressure, and will serve the purpose for almost any class of melting. See page 31. For pressures from 2 to 5 pounds a positive pressure blower will be required. Above this pressure any available compressed air may be used or steam at boiler pressure if specified. See page 31. The fuel pressure must be uniform. For oil, 5 pounds or over is sufficient. The quantity of fuel required will vary according to the kind of metal melted and the attention and promptness with which it is melted and poured. For ordinary brass mixtures from 1 1/3 to 2 gallons of oil, 186 to 280 cubic feet of natural gas, 267 to 400 cubic feet of city gas, and 596 to 894 cubic feet of 300 B. T. U. producer gas, per 100 pounds of metal melted is consumed. If gas is to be used instead of oil that fact, together with the kind and pressure, should be so stated when ordering, in which case we will furnish gas burners."

When writing to advertisers, please mention INTERNATIONAL MARINE ENGINEERING.

TRADE PUBLICATIONS

GREAT BRITAIN

Tantalum Lamps.—Siemens Bros., Dynamo Works, Ltd., 6 Bath street, City Road, London, E. C., have just issued a booklet containing illustrations and descriptions of the various types of tantalum lamps, which are said to be especially adapted to use on board ship.

Among the interesting articles appearing in the September issue of *Graphite,* published by the Joseph Dixon Crucible Company, Jersey City, N. J., are Chapter V. of W. H. Wakeman's "Preventing Corrosion of Steam Machinery" and an article on prolonging the life of crucibles by D. A. Johnson.

Some Interesting Relics.—In the Franco-British Exhibition, C. E. Heinke & Co., 87 Grange Road, Bermondsey, London, S. E., exhibited two swords recovered from the steamship *Indus,* a horseshoe from H. M. S. *Eurydice,* a number of fused coins (77,000 pounds worth) which were recovered from the steamship Japan, a treasure box, one of eight, each containing £1,000, recovered from the steamship *Catterthun.* All of this treasure was brought up by divers using the Heinke diving apparatus.

Bateman's Machine Tool Company, Ltd., Balm Road, Hunslet, Leeds, is exhibiting at the Electrical Exhibition a 36-inch by 36-inch by 10-foot top speed planer. This machine is fitted with two tool boxes on the cross rail and a side tool box on the near housing, besides a change speed gear box on the top of the housing. This gear box gives three cutting speeds—20 feet, 40 feet and 60 feet per minute, and the machine has a return speed of 180 feet per minute. It is driven by a Siemens motor, also mounted on the housing, through a Westinghouse locker chain. Thus the machine is perfectly self-containing.

Ward's metallic packing is described in an illustrated circular distributed by S. A. Ward & Company, Broad Street Lane, Sheffield. The manufacturer states that an ideal packing would be a perfectly broad and flat collar, fitting perfectly true to the piston rod bearing upon the face of a flat covering jointed on the end of a stuffing-box. "No ordinary pressure could pass it, but seeing that it is not practical the next approach to it is Ward's patent anti-friction metallic collar, divided and arranged in such a manner as to overcome the non-practicability of the ideal collar. This packing is largely used by British and foreign governments and in the mercantile marine of many countries.

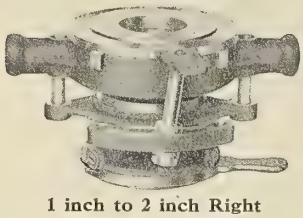
Improved patent oil cabinets are described in illustrated circulars distributed by the Valor Company, Ltd., Rocky Lane, Aston Cross, Birmingham. This cabinet is made of tinned steel with galvanized iron bottom. Being enameled bright red, it is attractive in appearance and is unaffected by weather or the oil. It shuts up and is dust proof, and owing to its double lid is entirely free from smell. The pump is made of polished brass, simple in construction, and it cannot get out of order. It is screwed into place, and can easily be taken out for filling the cabinet from a barrel. The amount of oil contained in the cabinet may be seen by a glance at the measuring rod.

BUSINESS NOTES

AMERICA

A COMBINED MELTING POT AND PAYING LADLE for paying seams of decks and floors with marine glue is made by L. W. Ferdinand & Company, 201 South street, Boston. Marine glue should be run into the seams immediately when melted, and the nose of the ladle should be held at least an inch above the deck. To obtain this result and prevent overheating of the glue, Mr. Arthur Jeffery has invented a combined melting pot and paying ladle, with which any workman without any previous experience can apply the glue as well as any old-time calker and run it into the seams without fear of injuring it. Messrs. Ferdinand & Company have received the following letter from J. S. Sheppard, proprietor of the Essington Shipyard & Marine Railway, Essington, Pa.: "I am very well pleased with Jeffery's melting pot and paying ladle, which I bought of you some time ago. It is one of the handiest and greatest time-saving devices around a shipyard. It made its cost in a short time in the saving of labor and in the saving of glue, as with the old process considerable glue was wasted. I would not be without one."

OSTER MATCHLESS TOOLS



1 inch to 2 inch Right
ONE SET DIES

Automatic Receding Dies
Self-Locking Chuck
Complete within itself
List Price, $25.00

THE OSTER MFG. CO.
2200 East 61st Street CLEVELAND, OHIO

Have You Seen the Perfection Wrench?

The newest and best wrench made

All steel—great strength Instantly adjusted. Easily and quickly operated. Positive grip. Immense time, trouble and temper saver. Indispensable to automobilists. Best "all round tool" ever offered for sale. "You'll want one when you see it." For circular address

THE PERFECTION WRENCH CO.
Box 426 PORT CHESTER, N. Y.

THE PHOSPHOR — — BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand."
Ingots, Castings, Plates, Strip, Bars, etc.

PHOSPHOR TIN AND PHOSPHOR COPPER.
"Cog Wheel Brand." The best qualities made.

WHITE ANTI-FRICTION METALS:

PLASTIC WHITE METAL. "Vulcan Brand."
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

"PHOSPHOR" WHITE LINING METAL.
Superior to Best White Brass No. 2, for lining Marine Engine Bearings, &c.

"WHITE ANT" METAL, No. 1. (Best Magnolia).
Cheaper than any Babbitt's.

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

Telegraphic Address: "PHOSBRONZE, LONDON." Telephone No.: 557 HOP.

THE AMERICAN COMPRESSOR PUMP COMPANY has been organized, with offices at 26 Cortlandt street, New York, for the manufacture of air and gas compressors, air receivers, high-duty vacuum pumps, pneumatic specialties, etc. The new company's works are located at 718 East Pratt street, Baltimore, Md., and are in charge of Mr. Alexander Slaysman, Jr., of Slaysman & Company, engineers and machinists. The company's machines are said to be simple in design, durable, economical in power consumption and automatic in operation. Each machine is made with templets and jigs, and therefore all parts are interchangeable, and can be obtained at once without the expense or delay or sending old broken parts or sketches. All machines will be thoroughly tested in the company's shops and are guaranteed as represented.

THE "THREE HORSES" BRAND OF IRON CEMENT is a composition which hardens like iron, which can be filed and polished, and which expands and contracts with the iron. It is especially useful for stopping up sand holes and pores in spongy iron, for making connections on broken pieces, joining iron, water, gas and steam pipes, and for repairing leaky boilers. It is said to resist acid and withstand a steam pressure up to 300 pounds. Until recently the entire output has been engaged by the German, Austrian and Scandinavian Iron Works. The John Baizley Iron Works, 514 South Delaware avenue, Philadelphia, are the general agents for this cement in the United States and Canada, and will send a free sample upon request to any reader mentioning INTERNATIONAL MARINE ENGINEERING.

NILES-BEMENT-POND COMPANY, 111 Broadway, New York City, makes a specialty of boiler shop tools, such as horizontal and vertical bending rolls, straightening rolls, plate planers, punching and shearing machines, manhole boring machines, hydraulic bending machines, hydraulic presses, steam and hydraulic riveters, hydraulic accumulators, steam hammers, flanging presses, etc. Any boiler maker desiring to be kept in touch with all the new tools put on the market for use in the boiler-making industry, should write to Niles-Bement-Pond Company, mentioning this magazine, and ask to be put on the free mailing list of *The Progress Reporter*, which the company publishes for the purpose of keeping the boiler-making field advised of the latest improvements in machinery and tools.

FREE—A LARGE CAN OF GREASE, AN ENGINEER'S CAP and a fine brass grease cup. These articles will be sent absolutely without charge to any engineer who will write to Department V, the Keystone Lubricating Company, Philadelphia, Pa., mentioning that he saw the offer in INTERNATIONAL MARINE ENGINEERING.

ORDERS FOR MARINE BOILERS.—The Kingsford Foundry & Machinery Works, Oswego, N. Y., which makes a specialty of marine and internally-fired boilers, operated their plant last winter with a full force of men, and now writes us that from present indications they will have more work this winter than last. During the past week the company has received orders for five marine boilers.

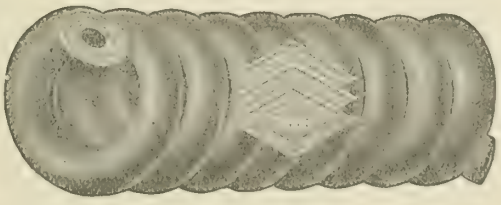
LAUNCHES FOR THE WAR DEPARTMENT.—The Electric Launch Company, Bayonne, N. J., is building thirty-two 32-foot gasoline junction-box launches for the artillery corps for use in mine planting along the seacoast. This is the largest order for motor boats ever placed by the United States government. All of the boats are to be delivered before April 1.

TWENTY-EIGHT FORCED DRAFT FANS for the battleships *Delaware* and *North Dakota* were built by the Sirocco Engineering Company, 138 Cedar street, New York City. Fourteen of these fans, each with a capacity of 24,000 cubic feet per minute, will be installed on each ship. These fans are 27 inches in diameter and are driven by General Electric motors. Sirocco fans are also building for the United States torpedo destroyers 17, 18 and 19, on which the plenum system of draft will be used.

"LEAK-NO" is a new compound for repairing iron and steel which has been placed on the market by the H. W. Johns-Manville Company, 100 William street, New York. This composition is a chemical compound resembling powdered iron. The manufacturer states that when mixed with water and applied like putty to defects in iron and steel articles, it metalizes and becomes a permanent part of the article to which it is applied. The company shows its faith in this material by offering to refund the purchase price in case it fails to stop any ordinary leak in anything made of iron or steel against any pressure of oil, steam, gas, ammonia or water, and to stand any heat or chemical that iron will stand.

COBBS HIGH PRESSURE SPIRAL PISTON
And VALVE STEM PACKING

IT HAS STOOD THE TEST OF YEARS AND NOT FOUND WANTING



IT IS THE MOST ECONOMICAL AND GREATEST LABOR SAVER

WHY? Because it is the only one constructed on correct principles. The rubber core is made of a special oil and heat resisting compound covered with duck, the outer covering being fine asbestos. It will not score the rod or blow out under the highest pressure.

NEW YORK BELTING AND PACKING CO.
91 and 93 Chambers Street, NEW YORK

CHICAGO, ILL., 150 LAKE STREET
ST. LOUIS, MO., 218-220 CHESTNUT STREET
PHILADELPHIA, PA., 118-120 NORTH 8TH STREET
SAN FRANCISCO, CAL., EAST 11TH STREET AND 3D AVENUE, OAKLAND
BOSTON, MASS., 232 SUMMER STREET
BALTIMORE, MD., 114 W. BALTIMORE STREET
BUFFALO, N. Y., 600 PRUDENTIAL BUILDING
PITTSBURGH, PA., 913-915 LIBERTY AVENUE
SPOKANE, WASH., 163 S. LINCOLN STREET
LONDON, E. C., ENGLAND, 58 HOLBORN VIADUCT

BUSINESS NOTES
GREAT BRITAIN

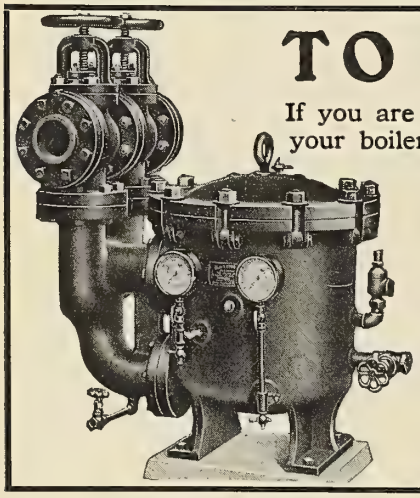
S. A. WARD & COMPANY, Broad street lane, Sheffield, manufacturers of marine metallic packing, have received the following unsolicited testimonial from J. Masson, chief engineer of the steamship *Registan:* "The steamship *Registan,* having been sold to the Company General Transatlantique, St. Nazaire, about a fortnight ago, I promised their superintendent engineer I would send him a sketch of the patent packing before I came away home. It would be better for you to send it than me, and may lead to you getting an order from them. They have a very large fleet and build most of their own vessels. One of their superintendent engineers made a run of 1,100 miles in the *Registan* before they bought her, and was highly pleased with it being so steam tight, and also the beautiful state of the piston rods. It is the best packing ever I have been with at sea."

"DR. SCHLICK'S GYROSCOPIC APPARATUS for preventing ships from rolling at sea has just given fresh proof of its power and suitability for the work for which it is designed. The first apparatus made in England has been constructed at the Neptune Works of Swan, Hunter & Wigham Richardson, Ltd., Newcastle, and has been fitted in the R. M. S. *Lochiel,* owned by tho enterprising firm of Messrs. David MacBrayne, Ltd., of Glasgow. Recently the apparatus has been very thoroughly tried on the *Lochiel's* ordinary route between Oban, Tiree and Bunessan, and, it is said, with most satisfactory results. The apparatus can be thrown in and out of action at will, and when out of action the vessel rolled to angles of 16 degrees on each side; that is, the total angle of roll was no less than 32 degrees, whilst when the apparatus was put into action the rolling was prevented and decreased to a total angle of roll of from 2 to 4 degrees, an amount which is barely perceptible to a passenger. The apparatus has previously been tried in England by Swan, Hunter & Wigham Richardson, Ltd., on an experimental vessel 116 feet long, and these later trials on the *Lochiel* amply confirm the high expectations which have been raised. The gyroscope on the *Lochiel* is driven electrically, requiring little attention, whilst the design has been simplified, and the machine is now very compact and requires but little space in the steamer."

SIEMENS BROS. DYNAMO WORKS, LTD., 6 Bath street, City Road, E. C., express their regret at any slight delay which may occur in the delivery of their new "Tantalum" lamp showcards. Although a very large number of these were printed, the demand has far exceeded all expectations. A reprint is now in active course of preparation, and all applications for showcards will be filled at the earliest possible date.

THE "PIONEER" PATENT OIL SEPARATOR, for the separation of oil and lubricating grease from exhaust steam, is made by David Bridge & Company, Castleton Iron Works, Castleton, Manchester. This separator is stated to be perfectly automatic, to have no parts which can get out of order, to be extremely simple in design. It is said that it has for years been put to the most severe tests in connection with condensing and non-condensing engines. The firm supplies all the necessary piping, pumps, tanks, etc., including installing same by skilled men.

TRIAL TRIP OF THE S. S. *Norburn.*—On Oct. 17 the steel screw steamer *Norburn,* built by Messrs. Craig, Taylor & Company, Ltd., Stockton-on-Tees, to the order of W. H. Loveridge, Esq., West Hartlepool, for the Norburn Steamship Company, Ltd. (Messrs. Smith, Hogg & Company, West Hartlepool, managers), was taken to sea for her trial trip, which proved highly satisfactory. She is of the single-deck type, of the following dimensions, viz.: 292 feet by 43 feet 9 inches by 20 feet 7 inches moulded; she is built of steel to the highest class in British Corporation Registry, under special survey, and has poop, bridge and topgallant forecastle; water ballast in double bottom fore and aft and in peaks. She is equipped with patent steam windlass with quick warping ends, steam steering gear, five steam winches, suitable donkey boiler, pole masts and all the latest improvements to facilitate rapid loading and discharging. The accommodation for captain and officers is neatly fitted up in deckhouses amidships, the engineers being in deckhouse alongside engine casing, and the crew in the forecastle. Her engines have been constructed by the Central Marine Engine Works, West Hartlepool, the cylinders being 22 inches, 35 inches, 58 inches by 39 inches stroke, with two large steel boilers working at 160 pounds pressure. During the whole of the trial everything worked with the greatest smoothness, and on a course of 6 miles a speed of 10½ knots was easily maintained, the vessel being fully loaded. She has been built under the superintendence of Donald Ross, Esq., West Hartlepool.



TO MARINE ENGINEERS:

If you are designing a new installation or are having trouble with oil and grease in your boilers, it will pay you to investigate the

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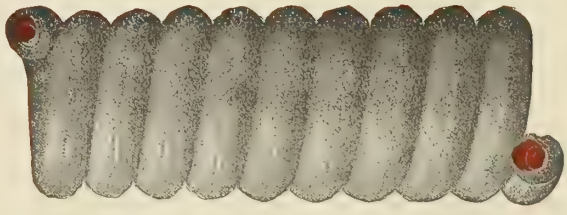

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